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OF THE

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OF THE

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OF THE

HEALTH DEPARTMENT

OF THE

CITY OF BOSTON

FOR THE YEAR 1903

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BOSTON
MUNICIPAL PRINTING OFFICE
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ORGANIZATION OF THE HEALTH DEPARTMENT.

SAMUEL H. DURGIN, *Chairman.*

EDWIN L. PILSBURY.

DENNIS J. HERN.

CHARLES E. DAVIS, Jr., *Secretary.*

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BOSTON, February 1, 1904.

HON. P. A. COLLINS,

Mayor of the City of Boston:

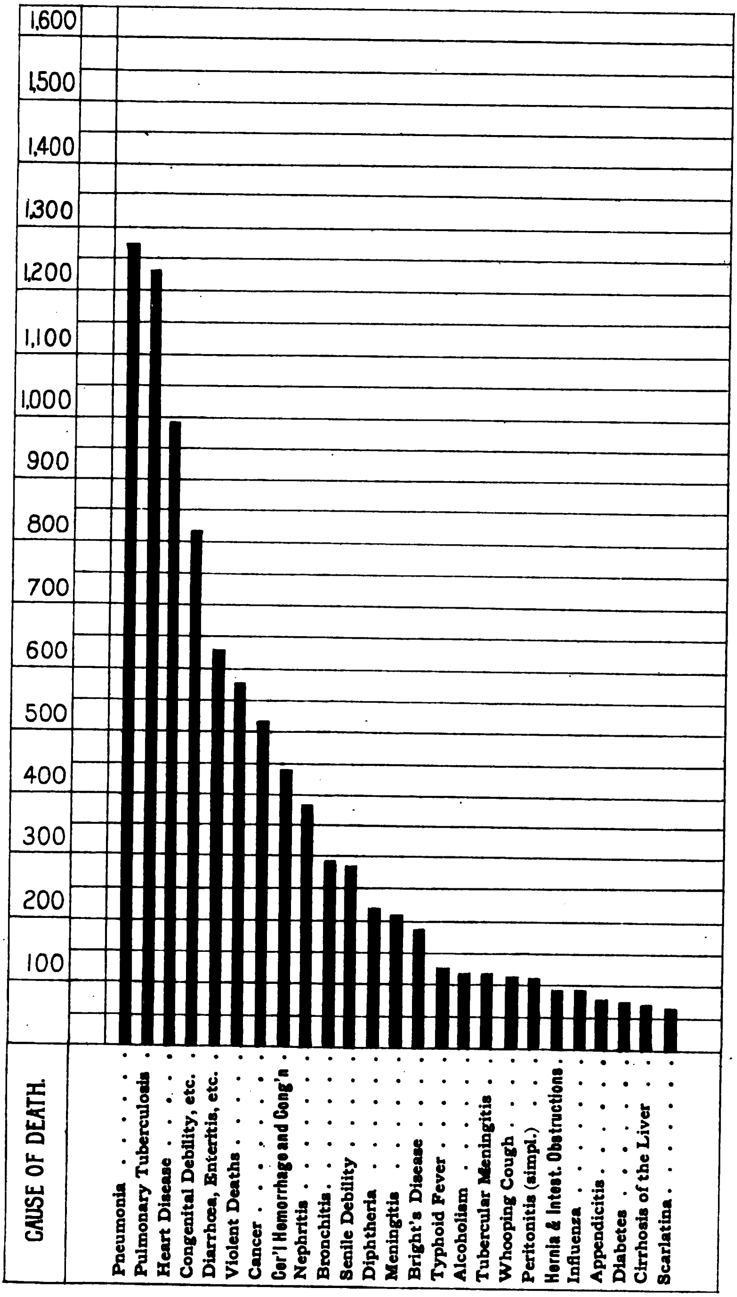
SIR, — The Board of Health respectfully presents the thirty-second annual report of the department, covering its operations for the financial year ending January 31, 1904, and the mortality statistics for the calendar year ending December 31, 1903. The general health of the city for the past year, so far as it may be judged by the total mortality and its classified causes, has been better than the average for many years.

The total number of deaths for the year was 10,632, a decrease from the previous year of 351 deaths. The population, estimated in the middle of the year, is 600,929. The death-rate for the year, as calculated on this population, is 17.69 per 1,000 inhabitants. This rate is less by 1.04 than that of the previous year, and the lowest on the city's record. There were 2,797 deaths from zymotic diseases, including consumption, a decrease of 301 deaths. There were 111 less deaths from diphtheria and croup than in 1902, with a proportionate decrease in the number of cases. The percentage of deaths to the number of cases of diphtheria reported was 10.32, as against 11.33 per cent. the preceding year. There were 65 deaths from scarlatina, 22 less deaths than in the preceding year, and 52 deaths less than the average of the five previous years. Typhoid fever has caused 119 deaths during the year, 20 less deaths than the preceding year. Fifty of the deaths from this cause occurred during the months of August, September, and October, and 76 of the whole number died between the ages of twenty and forty years.

There were 50 deaths from measles during the year. The number of deaths of children under five years of age was 3,079 compared with 3,368 for the previous year, showing a decrease of 289 deaths. The respiratory diseases are still the most fatal, causing fully 26 per cent. of the whole mortality for the past year.

CHART NO. 1.

Comparative View of Twenty-five of the Principal Causes of Death during the Year 1903.



■ **Deaths from Zymotic Diseases.**

■ **Deaths from other Diseases.**

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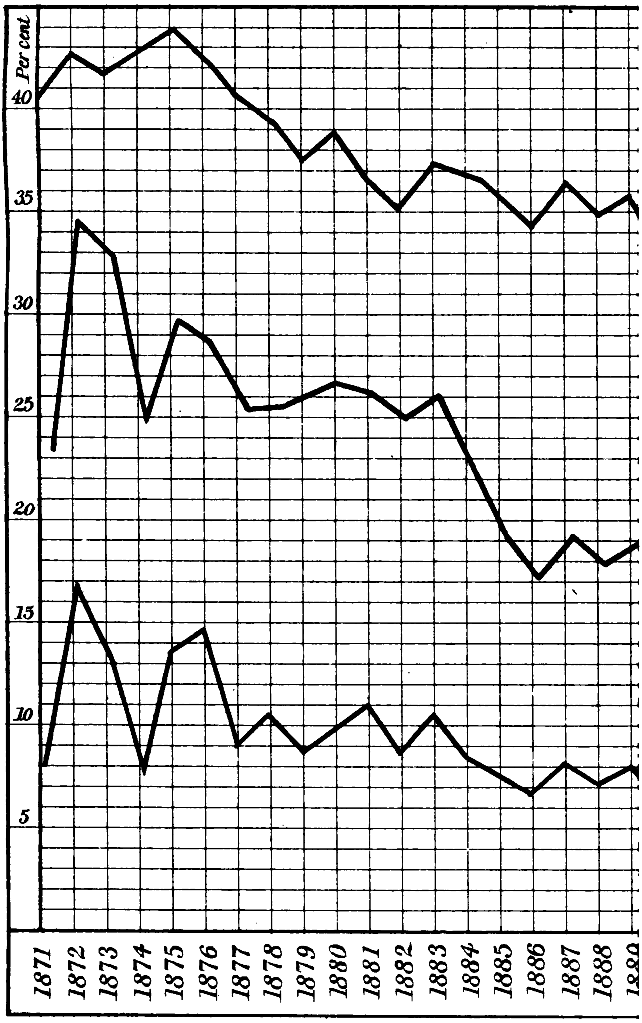
CHART NO.

Percentage of Deaths of Children u

ZYMOTIC DEATHS, AND FIVE OF THE PRI

to the total mortality for thirty-thr



Percentage of Children under five years
" of Zymotic deaths to total mor
" of Diphtheria, Scarlet Fever.
and Small-Pox to total mort

**The increased number of deaths in the Zymotic gro
1889 is chiefly due to the incorporating into this grou
Tuberculosis, with some forms of Diarrhœal Diseases.**

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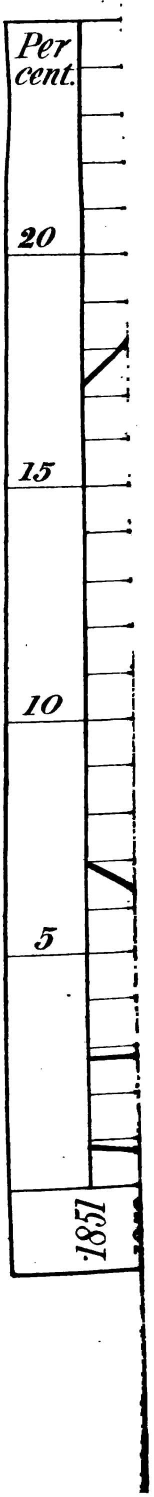

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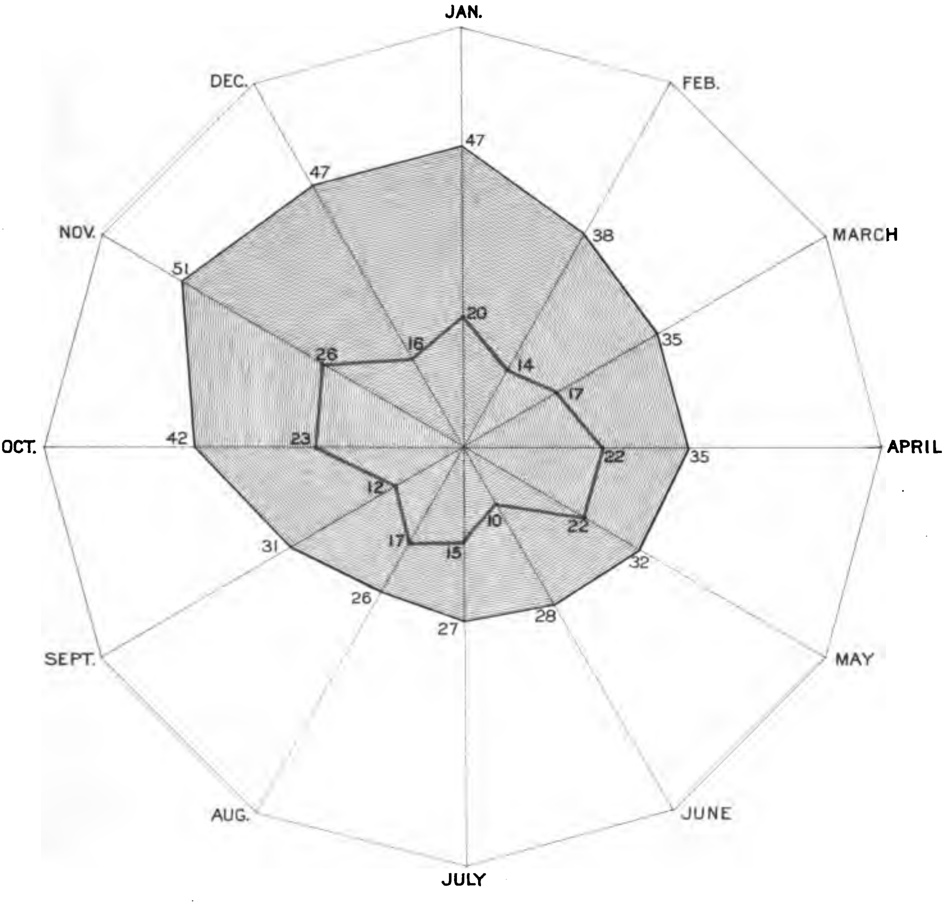
CHART NO. 4.

DIPHTHERIA.



———— Average deaths per month for ten years, 1894-1903.

———— Deaths per month for the year 1903.

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Table I. — Total of Deaths, Still-births and Deaths from Zymotic Diseases for Thirty-three Years, with Percentages.

YEARS.	Total Deaths, exclusive of Still-births.	Still-births.	Total Zymotics.	Diphtheria and Croup.	Scarlet Fever.	Typhoid Fever.	Cerebro-spinal Meningitis.	Whooping Cough.	Measles.	Diarrhœal Diseases.	Smallpox.	Percentage of Zymotic Deaths to total Mortality.	Rates of Still-births per 1,000 Inhabitants.
1871..........	5,888	543	1,408	128	111	176	3	30	9	756	23	23.91	1.88
1872	8,090	560	2,823	94	258	229	60	52	60	1,006	738	34.89	1.91
1873..........	7,869	515	2,626	119	474	243	216	33	16	925	302	33.37	1.76
1874..........	7,812	642	1,899	121	269	202	35	108	41	940	2	24.30	2.19
1875..........	9,060	541	2,722	631	534	227	41	41	65	989	1	30.02	1.28
1876..........	8,253	485	2,439	720	458	145	13	59	2	827	2	29.55	1.41
1877..........	7,316	471	1,890	471	104	156	24	88	2	913	4	25.83	1.37
1878..........	7,636	441	1,980	569	68	120	19	88	145	816	....	25.91	1.28
1879..........	7,398	453	1,935	545	149	119	15	112	2	772	....	26.15	1.24
1880..........	8,531	443	2,321	774	33	154	8	94	49	1,003	1	27.20	1.22
1881..........	9,016	513	2,423	802	35	207	16	77	108	870	6	26.87	1.29
1882..........	8,995	518	2,276	575	75	212	24	92	25	951	8	25.30	1.26
1883	9,740	504	2,551	608	211	198	23	31	152	1,023	1	26.19	1.17
1884..........	9,622	503	2,278	487	209	216	26	181	13	855	1	23.67	1.17
1885....... ..	9,618	520	1,879	450	156	152	19	26	84	723	2	19.53	1.30
1886..........	9,268	543	1,644	423	81	135	14	37	36	705	....	17.73	1.35
1887..........	10,073	534	1,903	410	195	183	16	82	119	734	....	19.70	1.33
1888..........	10,179	552	1,841	589	65	170	19	74	27	669	2	18.05	1.33
1889..........	10,259	598	1,968	683	23	186	21	96	48	710	2	19.18	1.42
1890..........	10,181	627	1,677	462	42	155	17	39	19	665	....	16.47	1.39
1891..........	10,571	614	1,615	285	64	154	21	39	21	755	....	15.27	1.33
1892..........	11,236	633	2,014	481	262	137	12	45	19	693	....	17.92	1.34
1893	11,710	605	2,042	546	248	148	15	40	27	635	....	17.43	1.24
1894.........	11,520	700	2,357	878	192	141	18	111	8	700	22	20.46	1.39
1895..........	11,329	607	1,968	654	114	163	15	47	19	627	....	17.37	1.21
1896	11,634	648	1,985	572	112	162	21	67	27	713	....	17.06	1.25
1897..........	11,154	614	1,806	456	136	173	185	39	21	522	....	16.19	1.16
1898..........	10,886	613	1,470	185	33	185	97	68	27	599	....	13.50	1.13
1899..........	11,167	539	1,444	304	74	165	88	76	33	396	5	12.93	.97
1900..........	11,678	573	3,787	537	181	143	66	99	89	[1] 740	....	32.43	1.02
1901..........	11,300	576	3,494	353	210	142	54	65	103	728	74	30.92	1.00
1902..........	10,983	623	3,098	225	87	139	62	132	66	636	190	28.20	1.06
1903..........	10,632	635	2,797	214	65	119	47	108	50	636	13	26.30	1.06

---

[1] The increase of diarrhœal diseases in the years 1900, 1901, 1902 and 1903 is due to the including in this group enteritis, gastro-enteritis, etc.

Table II.—Total number of Deaths under One Year; under Five Years, Five Years and over, with Percentages to the Total Mortality for Thirty-three Years. Also Death-rates under One Year per Ten Thousand Inhabitants.

YEARS.	Total Deaths.	Five Years and over.	Under Five Years.	Under One year.	PERCENTAGES.			Death rate under One year per 10,000 Inhabitants.
					Five Years and over.	Under Five Years.	Under One year.	
1871.......	5,888	3,493	2,395	1,597	59.33	40.67	27.12	61.89
1872.......	8,090	4,676	3,414	2,157	57.79	42.21	26.66	81.16
1873.......	7,869	4,580	3,289	2,066	58.20	41.80	26.25	64.32
1874.......	7,812	4,454	3,358	2,202	57.01	42.99	22.19	66.45
1875.......	9,060	5,088	3,972	2,263	56.16	43.84	24.98	66.18
1876.......	8,253	4,722	3,531	2,036	57.22	42.78	24.67	58.84
1877.......	7,316	4,334	2,982	1,817	59.24	40.76	24.84	51.60
1878.......	7,636	4,630	3,006	1,747	60.63	39.87	22.88	49.30
1879.......	7,398	4,593	2,805	1,690	62.08	37.92	22.84	47.13
1880.......	8,531	5,182	3,349	2,014	60.74	39.26	23.60	55.50
1881......	9,016	5,702	3,314	2,005	63.24	36.76	22.24	54.46
1882.......	8,995	5,844	3,151	1,945	64.97	35.03	21.62	52.05
1883.......	9,740	6,113	3,672	2,183	62.76	37.24	22.41	57.58
1884.	9,622	6,052	3,570	2,235	62.90	37.10	23.23	58.09
1885.......	9,618	6,152	3,466	2,156	63.97	36.03	22.42	55.23
1886.......	9,268	6,082	3,186	2,110	55.63	34.37	22.77	52.57
1887.......	10,073	6,411	3,662	2,312	63.55	36.35	22.95	56.02
1888.......	10,197	6,598	3,599	2,281	64.71	35.29	22.37	53.76
1889.......	10,259	6,626	3,633	2,360	64.59	35.41	23.00	54.10
1890.......	10,181	6,832	3,349	2,271	67.11	32.89	22.30	51.08
1891.......	10,571	6,963	3,608	2,552	65.87	34.13	24.14	55.75
1892.......	11,236	7,501	3,735	2,466	66.76	33.24	21.95	52.78
1893.......	11,710	7,723	3,987	2,531	65.96	34.04	21.61	53.07
1894.......	11,520	7,412	4,108	2,552	64.34	35.66	22.15	52.42
1895.......	11,329	7,394	3,935	2,580	65.27	34.73	22.77	51.49
1896.......	11,634	7,579	4,055	2,670	65.15	34.85	22.95	51.71
1897.......	11,154	7,446	3,708	2,462	66.76	33.24	22.07	46.55
1898.......	10,886	7,309	3,577	2,572	67.14	32.86	23.63	47.47
1899.......	11,167	7,576	3,591	2,404	67.84	32.16	21.53	43.41
1900.......	11,678	7,926	3,752	2,410	67.87	32.13	20.64	42.96
1901.......	11,300	7,831	3,469	2,287	69.30	30.70	20.24	39.87
1902.......	10,983	7,616	3,367	2,257	69.34	30.66	20.55	38.48
1903.......	10,632	7,553	3,079	2,173	71.04	28.96	20.44	36.16

Table III. — Deaths during the Year 1903, by Sex, Condition, Color, Nativity, Parentage, and Season.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Total number of deaths	1,037	950	995	969	861	685	893	858	843	811	796	934	10,632
Sex:													
Males	533	481	526	501	430	337	466	473	419	406	395	473	5,440
Females	504	469	469	468	431	348	427	385	424	405	401	461	5,192
Condition:													
Single	507	436	495	479	442	324	481	492	475	409	369	428	5,337
Married	323	297	310	310	263	241	262	241	245	259	273	318	3,342
Widows	120	132	114	115	99	80	93	72	73	94	97	116	1,205
Widowers	73	70	66	56	50	29	41	42	42	39	42	56	606
Divorced	8	4	4	2	3	2	4	1	3	2	6	2	36
Unknown	11	11	6	7	4	9	12	10	5	8	9	14	106
Color:													
White	999	919	968	950	843	669	876	829	819	775	775	897	10,319
Black (Negro or Mixed)	35	30	25	19	17	14	17	28	23	33	21	35	297
Indian	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	......
Chinese	3	1	2	.....	1	2	.....	1	1	3	.....	2	16
Nativity:													
United States	644	571	610	596	558	428	590	576	551	521	511	600	6,756
Ireland	200	195	185	170	148	125	133	126	141	129	145	169	1,866
England	25	25	23	34	22	12	18	20	19	30	17	18	263
Scotland	7	12	12	8	7	6	6	7	8	3	4	9	89
Germany	17	18	15	20	12	16	23	12	17	8	10	18	181
British Provinces	57	60	71	74	50	42	60	55	50	50	59	70	698
Italy	11	23	19	15	17	11	17	12	16	14	13	9	177
Russia	14	14	14	12	14	12	12	12	7	13	4	11	139
Sweden	9	5	8	6	10	4	4	5	8	7	6	3	75
Other countries	25	15	32	17	14	14	14	20	18	22	15	17	223
Unknown	28	12	6	17	9	15	16	13	8	14	12	15	165
Parentage:													
American	228	228	242	236	204	149	203	174	163	195	177	234	2,433
Irish	311	315	294	300	244	202	259	263	253	245	273	298	3,257
English	19	21	12	32	17	11	19	19	14	22	14	18	218
Scotch	9	11	14	13	7	7	5	9	10	5	5	11	106
German	18	21	18	25	16	20	28	15	28	10	16	18	233
British Provinces	48	41	57	44	38	36	50	54	48	31	39	45	531
Italian	41	43	52	39	47	28	42	39	43	26	24	41	465
Russian	24	31	30	25	18	22	31	36	23	31	21	24	316
Swedish	12	6	13	9	10	9	9	9	7	5	9	7	105
Other countries	65	51	76	52	60	57	65	63	69	52	57	63	730
Mixed	83	51	59	66	65	55	71	71	85	69	56	59	790
One parent unknown	73	50	42	52	64	30	34	40	43	56	41	35	560
Unknown	106	81	86	76	71	59	77	66	57	64	64	81	888

Table IV. — Monthly Deaths Reduced to a Standard of 100.

MONTHS 1908.	Total deaths in Month.	Monthly Deaths Reduced to a Standard of 100.	Deaths per Day.
Jauuary	1,037	114.8	33.5
February	950	116.5	33.9
March	995	110.2	32.1
April	969	110.8	32.3
May	861	95.4	27.7
June	685	78.7	22.8
July	898	98.9	28.8
August	858	95.0	27.7
September	843	96.4	27.1
October	811	89.8	26.2
November	796	91.1	26.5
December	934	103.4	30.1
	10,632	100	29.1

Table V. — Deaths from Principal Zymotic Diseases.

	Total Deaths from each Cause.	Percentage of each Cause to Total Mortality.	Death per 1,000 Inhabitants.	Total Deaths per sex.		Total Deaths per Sex under Five Years.		Total Deaths under Five years.	Percentage of each Cause under Five Years to Total Mortality.
				M.	F.	M.	F.		
Smallpox	13	.122	.022	7	6	2	1	3	.028
Measles	50	.470	.083	20	30	20	29	49	.460
Scarlatina	65	.611	.108	39	26	24	14	38	.357
Diphtheria	214	2.013	.356	108	106	74	64	138	1.298
Whooping-cough	108	1.016	.180	49	59	48	59	107	1.006
Typhoid fever	119	1.119	.198	79	40	......	2	2	.019
Erysipelas	34	.320	.057	17	17	5	7	12	.113
Puerperal Septicæmia	23	.216	.038	......	23	......	......	......	....
Dysentry	22	.207	.037	12	10	5	2	7	.066
Cholera Morbus	7	.066	.012	4	3	1	1	2	.019
Diarrhœa, Enteritis, etc.	636	5.982	1.058	333	303	316	270	586	5.512
Phthisis Laryngeal, Pulmonary and General Tuberculosis	1,227	11.540	2.042	637	590	23	26	49	.460
Influenza	83	.780	.138	38	45	3	2	5	.047
Rheumatism	71	.668	.118	39	32	......	1	1	.009
Syphilis, Congenital	20	.188	.033	11	9	9	9	18	.169
Syphilis, Tertiary	13	.122	.022	6	7	......	......	......	....
Pyemia and Septicæmia	66	.620	.110	33	33	6	2	8	.075

Table VI. —Yearly Percentages of Principal Zymotic Diseases from 1879 to 1903, inclusive, to Total Mortality.

	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903
Smallpox	......	.011	.066	.088	.010	.010	.020	......	......	.019	.019	......	......	......	.034	.190	......	......	......	......	.045	......	.655	1.730	.122
Measles	.027	.574	1.197	.277	1.560	.135	.873	.388	1.181	.264	.468	.186	.198	.169	.230	.069	.167	.234	.188	.248	.595	.753	.911	.601	.470
Scarlatina	2.014	.386	.388	.833	2.166	2.172	1.621	.873	1.935	.637	.224	.412	.605	2.331	2.118	1.666	1.006	1.040	1.219	.303	.662	1.549	1.858	.792	.611
Diphtheria	5.285	6.892	6.665	5.091	4.568	3.585	3.472	3.519	3.137	4.609	5.498	3.938	2.194	3.684	4.064	7.092	5.190	4.435	3.684	1.562	2.480	4.598	3.124	1.730	2.013
Croup	2.081	2.180	2.229	1.300	1.673	1.475	1.299	1.014	.933	1.167	1.160	.599	.501	.596	.597	.529	.582	.481	.403	.138	.242	......	......	.319	
Whooping cough	1.513	1.101	.854	1.022	.318	1.881	.270	.399	.814	.725	.936	.383	.368	.400	.341	.963	.414	.576	.349	.625	.680	.848	.575	1.202	1.016
Typhoid fever	1.608	1.804	2.295	2.356	2.032	2.245	1.580	1.456	1.816	1.667	1.813	1.522	1.456	1.219	1.263	1.223	1.438	1.392	1.551	1.699	1.477	1.224	1.257	1.265	1.119
Erysipelas	.527	.281	.465	.444	.431	.448	.415	.420	.337	.402	.234	.353	.368	.329	.478	.277	.300	.258	.287	.276	.376	.454	.451	.592	.320
Puerperal fever	.851	.726	.754	.833	.728	.467	.207	.183	.228	.176	.117	.265	.170	.249	.239	.138	.123	.172	.117	.073	.098	.248	.274	.291	.216
Carbuncle	.027	.035	.055	.044	.020	.031	.072	.032	......	......	.019	.058	.018	.035	.025	.008	......	.017	.027	.037	.018	......	......	......	......
Dysentery	1.365	1.488	1.064	.922	.903	.663	.644	.658	.585	.470	.741	.294	.451	.266	.333	.329	.379	.378	.161	.377	.277	.051	.248	.328	.207
Diarrhœa	2.487	2.056	2.606	2.568	2.731	2.286	1.767	1.855	1.578	1.510	1.589	1.119	.851	.685	.709	.607	.609	.559	.780	.937	.618	6.337	6.159	5.790	5.982
Cholera morbus	.351	.445	.177	.511	.246	.509	.319	.302	.258	.264	.214	.225	.189	.204	.119	.199	.132	.249	.152	.138	.143	.128	.039	.073	.666
Cholera infantum	5.117	6.071	4.924	5.625	5.574	5.372	4.793	4.790	4.894	4,314	4.386	4.891	5.647	5.010	4.261	4.939	4.413	4.942	3.386	4.051	2.507	......	......	......	......
Cerebro-spinal fever	.202	.105	.177	.266	.236	.270	.197	.151	.158	.186	.205	.166	.198	.105	.128	.156	.132	.180	1.659	.891	.788	......	......	......	......
Intermittent fever	.013	.058	.033	.023	.010	.010	.031	......	......	.009	......	......	.018	......	.051	.034	.044	.043	.009	.009	.009	.051	.009	.173	......
Remittent fever	.081	.082	.044	.011	.010	......	.020	.053	......	.109	......	......	.009	.008	.017	.130	.008	.009	......	.009	......	.590	......	......	......
Rheumatism	.378	.222	.454	.333	.215	.270	.405	.302	.436	.274	.302	.196	.217	.382	.273	.104	.185	.180	.134	.184	.152	......	......	.500	.668
Pyemia	.175	.048	.155	.233	.154	.176	.114	.183	.138	.098	.078	.127	.141	.080	.111	.130	.044	.069	.054	.064	.107	......	......	.810	.620
Syphilis, congenital	.243	.128	.221	.133	.184	.280	.218	.215	.268	.254	.214	.392	.198	.106	.153	.078	.229	.344	.197	.165	.197	.171	.194	.155	.188
Syphilis, tertiary	.094	.093	.088	.100	.133	.051	.503	.075	.079	.039	.097	.029	.047	.026	.068	.052	.070	.051	.080	.083	.045	.085	.115	.091	.122
Purpura	......	.058	.055	.011	.092	.011	.020	.075	.039	.639	.029	.058	.056	.026	.059	.564	.070	.077	.134	.064	.027	......	......	......	......
Alcoholism*	.554	.644	.820	1.045	.687	.737	.571	.420	.585	.519	.604	.746	.614	.640	.717	.355	.617	.739	.394	.524	.609	......	......	......	......
Septicemia	.175	.187	.122	.133	.277	.270	.322	.280	.228	.166	.175	.176	.274	.249	.367	......	.547	.456	.600	.569	.546	.856	.867	......	......
Yellow fever	......	......	......	......	......	.010	.010	......	......	......	......	......	......	......	......	......	......	......	.009	......	......	......	......	......	......
Tonsillitis	.040	......	......	.033	.102	......	.051	.043	.049	.068	.009	.009	.028	.080	.025	.017	,017	.017	.018	......	.009	......	......	......	......

* Alcohol is now excluded from list of zymotics.

Table VII. — The Number and Percentages of Deaths in each Quarter of each Year during a Period of Thirty-nine Years, 1865-1903, inclusive.

YEARS.	FIRST QUARTER.		SECOND QUARTER.		THIRD QUARTER.		FOURTH QUARTER.		Rate per 1,000 Inhabitants.[1]
	Deaths.	Per cent.	Deaths.	Per cent.	Deaths.	Per cent.	Deaths.	Per cent.	
1865	1,115	24.55	1,068	23.52	1,353	29.80	1,005	22.13	23.61
1866	999	22.81	957	21.85	1,338	30.56	1,085	24.78	22.51
1867	1,071	24.22	950	21.49	1,191	26.94	1,209	27.35	22.38
1868	1,341	24.30	1,203	21.80	1,736	31.45	1,239	22.45	23.89
1869	1,374	24.88	1,297	23.48	1,562	28.28	1,290	23,36	23.54
1870	1,395	22.88	1,314	21.55	1,983	32.52	1,406	23.05	24.34
1871	1,411	23.97	1,299	22.06	1,842	31.28	1,336	22.69	22.82
1872	1,697	20.97	1,777	21.97	2,511	31.04	2,105	26.02	30.43
1873	2,115	26.88	1,726	21.93	2,278	28.95	1,750	22.24	28.75
1874	1,805	23.11	1,818	23.27	2,278	29.16	1,911	24.46	23.57
1875	2,190	24.17	2,011	22.20	2,680	29.58	2,179	24.05	26.50
1876	2,246	27.21	1,809	21.92	2,375	28.78	1,823	22.09	20.96
1877	1,723	23.55	1,613	22.05	2,317	31.67	1,663	22.73	20.89
1878	1,743	22.82	1,744	22.84	2,174	28.47	1,975	25.87	21.55
1879	1,947	26.32	1,615	21.83	1,959	26.48	1,877	25.37	20.63
1880	2,015	23.62	1,829	21.45	2,500	29.30	2,187	25.63	23.51
1881	2,332	25.86	2,021	22.42	2,466	27.35	2,197	24.38	24.48
1882	2,104	23.39	2,212	24.59	2,489	27.67	2,190	24.35	24.07

1883	2,268	23.38	2,409	24.74	2,757	26.81	2,306	23.67	25.69
1884	2,284	23.73	2,108	21.85	2,725	28.33	2,510	23.09	25.01
1885	2,510	26.10	2,484	25.82	2,592	26.95	2,032	21.13	24.64
1886	2,214	23.89	2,113	22.79	2,580	27.84	2,361	25.48	23.09
1887	2,362	23.45	2,281	22.65	2,912	28.90	2,518	25.00	21.41
1888	2,790	27.36	2,420	23.73	2,649	25.98	2,338	22.93	24.03
1889	2,437	23.75	2,543	24.79	2,854	27.82	2,425	23.64	23.52
1890	2,911	28.60	2,244	22.04	2,699	26.51	2,327	22.85	22.70
1891	2,442	23.10	2,540	24.03	2,835	26.82	2,754	26.05	23.09
1892	2,998	26.68	2,582	22.98	2,958	26.33	2,698	24.01	24.04
1893	2,969	25.35	2,847	24.31	3,013	25.74	2,881	24.60	24.55
1894	2,972	25.80	2,592	22.50	3,182	27.62	2,774	24.08	23.66
1895	2,995	26.44	2,574	22.72	3,027	26.72	2,733	24.12	22.60
1896	2,897	24.90	2,807	24.13	3,319	28.53	2,611	22.44	22.53
1897	3,022	27.09	2,802	25.12	2,833	25.40	2,497	22.39	21.08
1898	2,599	23.87	2,512	23.08	3,051	28.03	2,724	25.02	20.09
1899	2,987	26.75	2,632	23.57	2,800	25.07	2,748	24.61	20.12
1900	3,368	28.84	2,778	23.79	2,906	24.89	2,626	22.48	20.82
1901	3,032	26.83	2,744	24.29	2,814	24.90	2,710	23.98	19.70
1902	2,868	26.11	2,645	24.08	2,647	24.10	2,823	25.71	18.73
1903	2,982	28.05	2,515	23.65	2,594	24.40	2,541	23.90	17.69

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[1] Population estimated in non-census years on Dr. Farr's formula.

Table VIII. — Deaths from Ten of the Pricipal Causes.

	Total Deaths from each Cause.	Percentage of each Cause to Total Mortality.	Death per 1,000 Inhabitants.	Total Deaths by Sex.		Total Deaths by Sex under Five Years.		Total Deaths under Five Years.	Percentage of each Cause under Five Years to Total Mortality.
				M.	F.	M.	F.		
Pneumonia	1,265	11.898	2.105	650	615	256	231	487	4.580
Pulmonary Laryngeal and General Tuberculosis	1,227	11.540	2.042	637	590	23	26	49	.460
Heart Disease	992	9.330	1.650	500	492	10	15	25	.235
Congenital Debility, Scleremia, etc.	824	7.750	1.371	440	384	440	384	824	7.750
Diarrhœa, Enteritis, etc.	636	5.982	1.058	333	303	316	270	586	5.512
Violent deaths	575	5.408	.956	441	134	36	31	67	.630
Cancer and other malignant tumors,	511	4.806	.850	188	323	3	2	5	.047
Cerebral Hemorrhage and Congestion	442	4.157	.735	217	225	5	3	8	.075
Nephritis	376	3.536	.626	202	174	8	8	16	.150
Bronchitis	288	2.709	.479	119	169	53	57	110	1.034

Table IX. — Total Deaths each Quarter of the last Five Years, with the Aggregate and Average Number from 1894 to 1898, Inclusive.

	1899.	1900.	1901.	1902.	1903.	5 years, 1894-1898.	
						Aggregate.	Average.
First quarter	2,987	3,368	3,032	2,868	2,982	14,485	2,897
Second quarter	2,632	2,778	2,744	2,645	2,515	13,287	2,657
Third quarter	2,800	2,906	2,814	2,647	2,594	15,412	3,082
Fourth quarter	2,748	2,626	2,710	2,823	2,541	13,339	2,668
Total each year,	11,167	11,678	11,300	10,983	10,632	56,523	11,304

Table X. — Total Deaths and Percentages each Quarter for the Year 1903, with Aggregates and Percentages for the Ten Years Previous.

	1903.		1893-1902.	
	Deaths.	Per cent.	Deaths.	Per cent.
First quarter..................	2,982	28.05	29,709	26.21
Second quarter..........................	2,515	23.65	26,933	23.76
Third quarter	2,594	24.40	29,592	26.10
Fourth quarter..........................	2,541	23.90	27,127	23.93
Total.....................	10,632	100.00	113,361	100.00

Table XI. — Parentage of Children under One, Two, and Five Years for each Month during Year 1903.

	JANUARY.			FEBRUARY.			MARCH.			APRIL.			MAY.			JUNE.		
	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.
United States	34	4	8	48	13	10	44	14	12	50	13	11	34	7	8	31	2	6
Foreign	87	24	27	77	14	18	97	27	26	69	32	23	62	25	26	57	13	19
Mixed	28	6	12	21	2	6	18	3	2	24	4	2	18	1	8	19	3	7
One parent known	31	2	......	18	......	1	11	......	2	22	......	3	32	3	3	13	2	1
Unknown	10	1	1	8	3	......	5	1	......	7	......	2	6	......	......	2	......	2
Total	190	37	48	172	32	35	175	45	42	172	49	41	152	36	45	122	20	35

	JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.	Under 1 yr.	1 yr. and under 2 yrs.	2 yrs. and under 5 yrs.
United States	53	11	11	56	7	6	44	4	8	52	9	7	20	11	9	53	11	17
Foreign	105	18	21	146	25	16	123	20	17	76	18	24	71	21	21	61	23	22
Mixed	30	8	5	35	7	5	50	4	5	29	3	2	22	11	3	20	5	4
One parent known	15	2	1	21	3	1	20	......	......	26	1	1	8	4	1	14	1	2
Unknown	11	......	......	9	......	......	10	......	1	3	2	......	4	......	......	3	2	......
Total	214	39	38	267	42	28	247	28	31	186	33	34	125	47	34	151	42	45

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Typhoid Fever, and Measles,

Table XII. — Cases Reported, and Deaths from Smallpox, Diphtheria, Scarlet Fever, Typhoid Fever, and Measles, with Percentages.

DATE.	SMALLPOX.		Percentages.	DIPHTHERIA AND CROUP.		Percentages.	SCARLET FEVER.		Percentages.	TYPHOID FEVER.		Percentages.	MEASLES.		Percentages.
	Cases.	Deaths.		Cases.	Deaths.		Cases.	Deaths.		Cases.	Deaths.		Cases.	Deaths.	
1872........	2,592	738	28.4												
1873........	1,103	302	27.3												
1874........	7	2	28.5												
1875........	5	1	20.0												
1876........	6	2	33.33												
1877........	17	4	23.5	....	....	....	1,334	104	7.7						
1878........	....	....	....	1,370	569	41.53	848	68	8.0						
1879........	....	....	....	1,167	545	46.70	951	149	16.6						
1880........	4	1	25.0	1,715	774	45.13	497	33	6.6	Oct. 1 to Dec. 31.	Oct. 1 to Dec. 31.				
1881........	44	6	13.6	1,680	802	47.74	383	35	9.1	335	76	26.8	June 1 to Dec. 31.		
1882........	24	8	33.3	1,386	575	41.63	689	75	10.9	808	212	26.2			
1883........	8	1	12.4	1,415	608	42.97	1,408	211	14.7	887	198	22.3	409	152	†
1884........	1	1	100.0	1,212	487	40.18	2,526	209	8.2	948	216	22.6	201	13	6.47
1885........	11	1	9.0	1,263	450	35.63	1,665	156	9.2	767	152	19.8	1,699	84	4.94
1886........	1	....	....	1,188	423	35.60	1,149	81	7.0	814	135	16.5	783	36	4.59
1887........	4	....	....	1,049	410	39.08	1,549	195	12.58	940	183	19.46	2,273	119	5.23
1888........	8	1	12.4	1,411	589	41.17	707	65	9.19	924	170	18.39	1,517	27	1.77
1889........	10	2	20.0	1,814	683	37.65	464	23	4.96	1,071	186	17.37	2,399	43	2.00
1890........	1	....	....	1,475	462	31.32	924	42	4.54	847	135	18.29	1,109	19	1.71
1891........	....	....	....	831	285	34.29	1,327	64	4.82	966	154	15.94	2,568	21	.82
1892........	....	....	....	1,358	481	35.55	2,938	262	8.91	765	187	17.90	1,563	19	1.21
1893........	26	4	15.3	1,465	546	37.27	2,580	248	9.61	824	148	17.96	3,699	27	.73
1894........	77	22	28.5	3,019	878	29.07	2,230	192	8.60	915	141	15.41	913	8	.88
1895........	....	....	....	4,059	654	16.11	1,612	114	7.07	1,026	163	15.88	2,733	19	.69
1896........	....	....	....	4,489	572	12.74	1,216	121	9.95	1,076	162	15.06	3,043	27	.89
1897........	10	....	....	3,398	456	13.42	1,938	136	7.02	609	173	28.40	4,539	21	.46
1898........	....	....	....	1,661	185	11.14	877	33	3.76	555	185	33.33	2,177	27	1.24
1899........	* 29	5	17.24	2,836	304	10.72	1,381	74	5.36	765	165	21.57	4,110	33	.80
1900........	7	....	....	4,977	537	10.79	1,710	181	10.58	730	143	19.59	2,465	89	3.61
1901	504	74	14 68	3,319	353	10.63	1,398	210	15.02	713	141	19.77	4,462	103	2.31
1902........	1,024	190	18 55	1,986	225	11.33	1,122	87	7.75	910	139	15.27	3,772	66	1.75
1903	68	13	19.12	2,073	214	10.32	1,479	65	4.39	890	119	13.37	2,305	50	2.17

* Including one case and one death at quarantine.

† This percentage is not calculated as the cases were only reported for a part of the year.

COMPARATIVE DEATHS IN AMERICAN AND FOREIGN CITIES.

The following tables have been prepared to show the comparison of deaths in a few large American and foreign cities, as compared with the City of Boston. It is to be regretted that the amount of information desired is not fully complete, owing to the scarcity of material and information furnished, but in their present condition, as a matter of reference, they may be of value:

Table XV. — Boston.

YEARS.	Population.	Total Deaths.	Population of Children under 5 years of age.[1]	Deaths of Children under 5 years of age.	Deaths from Diphtheria.	Deaths from Scarlatina.	Deaths from Typhoid Fever.	Deaths from Measles.
1880...........	362,839	8,531	29,649	3,349	538	33	154	49
1881...........	368,190	9,016	30,809	3,314	601	35	207	108
1882...........	373,623	8,995	31,969	3,151	458	75	212	25
1883...........	379,129	9,740	33,129	3,627	445	211	198	152
1884...........	384,720	9,622	34,289	3,570	345	209	216	13
1885...........	390,393	9,618	35,449	3,466	334	156	152	84
1886...........	401,374	9,268	36,582	3,186	329	81	135	36
1887...........	412,663	10,073	37,717	3,662	316	195	183	119
1888...........	424,274	10,197	38,849	3,509	470	65	170	27
1889...........	436,208	10,259	39,983	3,633	564	23	186	48
1890...........	448,477	10,181	40,001	3,349	401	42	155	19
1891...........	457,772	10,571	41,358	3,608	232	64	154	21
1892...........	467,260	11,236	42,715	3,735	414	262	137	19
1893...........	476,945	11,710	44,072	3,987	476	248	148	27
1894...........	486,830	11,520	45,430	4,108	817	192	141	8
1895...........	501,083	11,329	46,787	3,935	588	114	163	19
1896...........	516,305	11,634	48,902	4,055	516	121	162	27
1897...........	528,912	11,154	51,017	3,708	411	136	173	21
1898...........	541,827	10,886	53,131	3,577	170	33	185	27
1899...........	555,057	11,167	55,246	3,591	277	74	165	33
1900...........	560,892	11,678	57,361	3,752	[2] 537	181	143	88
1901...........	573,579	11,300	59,476	3,469	[2] 353	210	142	103
1902...........	584,553	10,983	61,591	3,367	225	87	139	66
1903...........	600,929	10,632	63,706	3,079	214	65	119	50

[1] Estimated. [2] The deaths from diphtheria since 1899 include membraneous croup.

Table XVI.—Philadelphia, Pa.

YEARS.	Population.	Total Deaths.	Population of Children under 5 years of age.	Deaths of Children under 5 years of age.	Deaths from Diphtheria.	Deaths from Scarlatina.	Deaths from Typhoid Fever.	Deaths from Measles.
1880[1].........	846,980	17,711	[1] 91,544	6,594	323	291	498	108
1881...........	868,000	19,515	[2] 92,744	7,124	457	486	645	17
1882...........	886,539	20,059	94,044	7,254	933	310	650	91
1883...........	907,041	20,076	95,234	7,417	1,006	561	579	58
1884...........	927,995	19,999	96,465	7,606	680	540	662	96
1885...........	949,432	21,392	97,965	8,188	600	375	610	131
1886...........	971,363	20,005	98,925	7,351	411	248	618	19
1887...........	993,801	21,719	100,155	8,421	416	159	621	358
1888...........	1,016,758	20,372	101,386	7,269	350	235	785	24
1889...........	1,040,245	20,536	102,616	7,752	375	298	736	92
1890[1].........	1,046,964	21,732	[1] 103,847	7,913	528	189	666	105
1891.	1,069,264	23,367	105,077	8,479	918	341	684	25
1892...........	1,092,168	24,305	....	9,305	1,425	484	539	74
1893...........	1,115,562	23,655	....	8,690	892	267	456	88
1894...........	1,139,457	22,680	....	8,160	1,047	154	369	33
1895...........	1,163,864	23,797	....	8,401	1,020	79	469	84
1896...........	1,188,793	23,982	....	8,661	862	61	402	191
1897...........	1,214,256	22,735	....	7,605	1,231	282	401	64
1898...........	1,240,266	23,790	....	7,998	998	114	[3] 639	234
1899...........	1,266,832	23,796	....	7,056	849	132	948	7
1900...........	1,293,697	25,078	....	8,078	898	163	449	382
1901...........	1,321,408	24,137	....	6,840	525	219	444	26
1902...........	1,349,712	23,847	....	6,922	435	143	588	112
1903...........	1,378,624	25,947	....	7,079	521	159	957	141

[1] Census years. [2] Estimated on the increase of census years.

[3] Seventy-three of these were soldiers who contracted the disease in camps.

Table XVII. — (Old City of) New York, N. Y.

YEARS.	Population.	Total Deaths.	Population of Children under 5 years of age.[1]	Deaths of Children under 5 years of age.	Deaths from Diphtheria.	Deaths from Scarlatina.	Deaths from Typhoid Fever.	Deaths from Measles.
1880[1]	1,209,268	31,937	140,678	14,650	1,390	618	372	479
1881	1,246,011	38,624	144,947	17,737	2,249	1,964	594	429
1882	1,283,870	37,924	149,851	17,520	1,525	2,066	516	913
1883	1,322,880	34,011	153,889	13,856	1,009	744	625	716
1884	1,363,075	35,044	158,565	15,272	1,090	608	476	762
1885	1,404,401	35,682	163,383	15,267	1,325	559	405	736
1886	1,447,166	37,351	168,347	16,121	1,727	371	433	668
1887	1,491,137	38,933	173,462	16,766	2,167	569	421	767
1888	1,536,444	40,175	178,733	17,358	1,914	1,361	364	591
1889	1,583,120	39,679	184,164	17,152	1,686	1,242	397	470
1890	1,631,232	40,103	189,760	16,305	1,262	408	352	730
1891	1,680,796	43,659	195,525	18,224	1,361	1,220	384	663
1892	1,708,124	44,317	....	18,589	1,425	975	399	863
1893	1,758,010	44,479	....	17,914	1,968	552	381	390
1894	1,809,353	41,175	....	17,596	2,359	541	326	584
1895	1,873,201	43,420	210,523	18,221	1,634	468	322	793
1896[1]	1,906,139	41,622	210,523	16,807	1,555	402	297	714
1897	1,940,558	38,887	226,327	15,394	1,377	500	299	391
1898	1,976,572	40,438	233,150	15,591	922	524	376	446
1899	2,014,330	39,911	240,714	14,391	940	332	294	379
1900	2,053,979	43,227	233,537	15,646	1,121	315	372	470
1901	2,095,686	43,307	239,703	14,810	1,227	635	412	272
1902	2,139,632	41,704	245,202	15,019	1,142	635	400	462
1903	2,186,017	41,776	250,517	13,741	1,232	465	350	321

[1] Estimated July 1, 1896.

Table XVIII.—Chicago, Ill.

YEARS.	Population, Estimated.	Total Deaths.	Population of Children under 5 years of age.	Deaths of Children under 5 years of age.	Deaths from Diphtheria.	Deaths from Scarlatina.	Deaths from Typhoid Fever.	Deaths from Measles.
1880	503,298	10,462						
1881	540,000	13,874						
1882	560,639	13,234	....	6,645				
1883	580,000	11,555	....	5,875				
1884	630,000	12,471	....	6,666				
1885	665,000	12,474	....	6,187	706	279	496	78
1886	704,000	13,699	....	6,763	944	220	483	126
1887	760,000	15,400	....	7,568	1,002	190	381	341
1888	830,000	15,772	....	7,583	858	184	375	151
1889	1,106,000	16,946	....	8,204	1,126	185	453	204
1890	1,200,000	21,869	....	9,954	881	193	1,008	67
1891	1,250,000	27,754	....	12,801	958	499	1,997	265
1892	1,438,000	26,219	....	11,662	1,014	382	1,489	185
1893	1,600,000	27,095	....	12,364	975	329	670	234
1894	1,567,727	23,701	....	12,363	841	190	491	182
1895	1,600,000	24,319	227,200	10,449	1,775	77	518	158
1896	[1]1,619,226	23,262	192,453	15,336	955	54	751	73
1897	1,619,226	21,809	192,453	8,546	702	81	437	139
1898	1,650,000	22,747	196,193	8,135	622	67	636	55
1899	1,950,000	25,503	196,299	8,880	843	533	442	168
1900	1,698,575	24,941	220,824	8,282	797	226	337	194
1901	1,758,025	24,406	....	7,489	495	165	509	158
1902	1,820,000	26,455	204,061	8,027	596	445	801	123
1903	1,885,000	28,928	211,200	7,879	614	296	588	276

[1] School Census, July 1, 1896.

Table XIX. — Brooklyn, N. Y.

YEARS.	Population.	Total Deaths.	Population of Children under 5 years of age.	Deaths of Children under 5 years of age.	Deaths from Diphtheria.	Deaths from Scarlatina.	Deaths from Typhoid Fever.	Deaths from Measles.	Deaths from Consumption.
1885........	687,000	15,369	89,310	6,756	519	363	153	175	1,995
1886........	747,000	15,790	97,110	7,000	782	340	123	106	2,085
1887........	778,800	17,079	101,140	7,577	950	271	143	172	2,026
1888........	810,000	18,061	105,300	8,019	984	475	153	59	2,051
1889........	842,000	18,480	109,460	8,265	1,101	273	161	205	2,055
1890........	875,000	19,827	113,750	8,462	902	227	182	111	2,169
1891........	910,000	21,349	118,300	9,388	766	485	180	203	2,117
1892........	898,256	20,807	122,850	8,971	775	412	162	168	2,128
1893........	928,408	21,017	127,400	8,763	607	307	179	111	2,174
1894........	959,572	21,183	135,850	9,235	1,279	188	158	204	2,260
1895........	991,782	22,568	124,000	9,277	1,139	124	173	192	2,299
1896........	1,025,074	22,497	146,000	9,006	1,063	150	163	333	2,245
1897........	1,060,483	20,674	130,500	8,252	795	187	173	190	2,164
1898........	1,095,047	21,856	134,793	8,414	742	159	267	193	2,384
1899........	1,131,805	21,649	....	8,072	583	175	205	197	2,435
1900........	1,169,796	23,057	[1] 131,719	8,776	673	130	301	310	2,445
1901........	1,209,064	23,271	124,500	8,151	733	496	274	160	2,474
1902........	1,249,650	22,344	145,324	7,983	762	275	322	239	2,317
1903........	1,291,597	22,192	....	7,068	830	244	267	167	2,376

[1] Estimated.

Table XX. — St. Louis.

YEARS.	Population.	Total Deaths.	Deaths of Children under 5 years of age.	Deaths from Diphtheria.		Deaths from Scarlet Fever.	Deaths from Typhoid Fever.	Deaths from Measles.	Deaths from Consumption.
				Diph.	*Croup.*				
1885...........	400,000	7,490	3,090	392	109	164	125	54	888
1886...........	400,000	8,268	3,434	719	160	149	124	6	915
1887...........	420,000	9,155	3,795	927	185	48	116	40	829
1888......	440,000	9,015	3,659	564	167	30	130	31	800
1889...........	450,000	8,004	3,149	345	94	114	146	63	655
1890...........	460,000	8,409	3,115	186	58	87	140	1	843
1891...........	480,000	9,530	3,493	250	90	96	165	53	869
1892...........	500,000	10,225	3,607	195	91	150	441	7	882
1893...........	520,000	10,308	3,548	227	144	79	215	26	984
1894...........	540,000	8,710	3,192	240	139	29	171	3	875
1895...........	560,000	9,425	3,373	512	171	18	107	38	1,000
1896...........	570,000	9,897	3,326	273	....	11	108	17	1,026
1897...........	600,000	9,554	2,799	170	70	19	123	1	997
1898...........	623,000	8,908	3,358	152	51	28	95	21	1,001
1899...........	640,000	10,024	3,005	192	....	34	131	15	1,091
1900...........	575,200	9,849	....	344	64	57	148	45	1,006
1901...........	598,000	10,601	....	259	....	69	176	34	1,128
1902...........	621,000	10,353	2,671	160	....	132	222	10	1,131
1903...........	645,000	11,145	2,842	162	....	89	268	140	1,126

Table XXI. — London, England.

YEARS.	Population.	Total Deaths.	Population of Children under 5 years of age.	Deaths of Children under 5 years of age.	Deaths from Diphtheria.	Deaths from Scarlatina.	Deaths from Typhoid Fever.	Deaths from Measles.
1880	3,771,139	81,832	....	36,220	544	3,100	702	1,521
1881	3,824,960	81,071	497,044	33,325	654	2,108	977	2,533
1882	3,861,876	82,905	....	36,259	863	2,004	975	2,329
1883	3,901,164	80,578	....	33,552	951	1,989	935	2,420
1884	3,939,832	83,050	....	36,030	973	1,444	936	2,285
1885	3,978,883	80,000	....	32,913	896	707	585	2,928
1886	4,018,321	82,276	....	34,319	846	688	618	2,078
1887	4,058,150	82,304	....	35,236	953	1,419	612	2,904
1888	4,098,374	79,099	....	32,669	1,311	1,190	694	2,425
1889	4,138,996	76,026	....	30,469	1,616	771	528	2,308
1890	4,180,021	89,554	....	36,123	1,417	876	618	3,291
1891	4,221,452	90,216	501,558	33,340	1,361	589	547	1,807
1892	4,263,294	87,749	....	34,560	1,885	1,174	436	3,393
1893	4,306,411	91,536	....	35,200	3,265	1,596	719	1,661
1894	4,349,166	77,039	....	31,366	2,670	962	635	3,293
1895	4,392,346	86,937	....	35,095	2,316	829	614	2,633
1896	4,421,955	83,511	....	35,599	2,683	942	591	3,697
1897	4,463,169	80,944	....	32,238	2,263	781	593	1,928
1898	4,504,766	83,936	536,522	34,184	1,772	583	585	3,075
1899	4,506,752	89,689	541,523	32,073	1,964	398	801	2,143
1900	4,589,129	86,007	546,570	30,979	1,558	361	756	1,936
1901	4,544,983	79,924	....	....	1,344	584	548	1,958
1902	4,579,110	82,540	500,259	28,768	1,181	563	585	2,361
1903	4,613,812	72,019	504,050	25,727	[1] 752	362	[2] 396	2,054

[1] Excluding croup. [2] Including croup.

Table XXII. — Paris, France.

YEARS.	Population.	Total Deaths.	Population of Children under 5 years of age.[1]	Deaths of Children under 5 years of age.	Deaths from Diphtheria.	Deaths from Scarlatina.	Deaths from Typhoid Fever.	Deaths from Measles.
1880	....	55,706	....	17,674	2,048	345	2,003	962
1881	2,239,938	55,103	148,601	17,159	2,211	440	1,955	897
1882	....	56,854	....	17,158	2,244	156	3,214	1,005
1883	....	54,763	....	16,843	1,781	88	1,880	1,043
1884	....	55,050	....	16,968	1,928	155	1,503	1,501
1885	....	52,726	....	15,244	1,655	191	1,320	1,524
1886	2,260,945	55,110	146,177	16,493	1,512	403	954	1,210
1887	....	52,836	....	15,206	1,585	224	1,385	1,628
1888	....	51,230	....	14,463	1,729	193	756	915
1889	....	54,083	....	14,679	1,706	170	1,008	1,190
1890	....	54,566	150,490	15,068	1,668	223	665	1,495
Census of 12th April, 1891.	2,424,705							
1891	2,424,705	54,443	150,490	14,048	1,531	208	549	1,020
1892	2,424,705	54,536	150,490	14,353	1,403	198	691	999
1893	2,424,705	52,955	....	13,046	1,266	177	570	677
1894	2,424,705	[2] 49,205	150,490	11,901	1,009	151	697	993
1895	2,424,705	51,451	....	....	421	179	274	682
1896	2,511,629	47,929	188,941	10,363	444	190	262	656
1897	2,511,629	46,988	156,494	10,528	298	65	249	821
1898	2,511,629	49,574	156,494	11,671	259	138	256	876
1899	2,511,629	50,511	....	....	336	196	754	901
1900	2,511,629	51,725	....	8,966	294	172	912	854
1901	2,660,494	50,195	....	10,237	628	113	363	578
1902	2,660,559	49,275	196,494	....	529	64	17	625
1903	2,660,559	46,557	....	....	396	135	280	441

[1] Estimated, 1891.

[2] Inhabitants of Paris only.

Table XXIII. — Berlin, Germany.

Years.	Population.	Total Deaths.[1]	Population of Children under 5 years of age.	Deaths of Children under 5 years of age.	Deaths from Diphtheria.	Deaths from Scarlatina.	Deaths from Typhoid Fever.	Deaths from Measles.
Beginning ...	1,089,070	....	142,476					
1880..........	....	32,823	....	19,249	1,198	872	527	376
End..........	1,123,749	....	183,060					
1881..........	....	31,055	....	17,483	1,593	908	352	201
End..........	1,158,539	....	143,828					
1882..........	....	30,465	....	16,990	1,914	604	357	144
End..........	1,196,205	....	146,138					
1883..........	....	35,056	....	19,902	2,651	867	222	1,173
End..........	1,232,716	....	144,464					
1884..........	....	32,932	....	18,440	2,446	395	243	295
End..........	1,271,677	....	144,620					
1885..........	....	31,483	....	15,558	1,816	409	214	406
End..........	1,315,656	....	146,227					
1886..........	....	34,293	....	19,215	1,535	271	181	565
End..........	1,363,031							
1887..........	....	30,336	....	15,777	1,305	257	193	223
End..........	1,415,269							
1888..........	....	29,298	....	15,076	1,018	201	188	364
End..........	1,472,151							
1889..........	....	34,460	....	18,394	1,189	244	290	201
End..........	1,528,721							
1890..........	....	33,393	....	17,630	1,492	298	143	441
End..........	[1]1,579,524	....	[2]164,370					
1891..........	1,601,327	....	....	16,800	1,010	150	166	130
1892..........	1,656,715	32,696	172,378	16,319	1,325	53	137	217
1893..........	1,714,938	36,032	....	....	1,578	582	161	341
1894..........	1,655,235	30,961	176,200	14,649	1,361	443	69	203
1895..........	1,677,304	33,627	164,258	16,034	934	817	95	175
1896..........	1,695,313	30,578	....	13,443	515	333	80	111
1897..........	1,758,885	30,622	58,339	13,825	507	217	71	161
1898..........	1,805,054	30,571	56,751	13,595	608	268	78	119
1899..........	1,817,952	34,011	166,888	14,878	609	525	74	530
1900..........	1,864,203	35,409	....	15,498	534	502	109	195
1901..........	1,891,900	34,091	....	14,839	469	492	88	174
1902..........	1,920,459	30,737	....	11,724	205	272	52	373
1903..........	1,955,875	31,879	....	12,254	218	331	63	341

[1] Census of December 1, 1890.

[2] Excluded: Still-born, 1,749, 1,771, 1,759, 1,707, 1,778, 1,848, 1,710, 1,761, 1,756, 1,789, 1,473.

Table XXIV. — Vienna, Austria.

YEARS.	Population.	Total Deaths.	Population of Children under 5 years of age.	Deaths of Children under 5 years of age.	Deaths from Diphtheria and Croup.	Deaths from Scarlatina.	Deaths from Typhoid Fever.	Deaths from Measles.
1880	721,016	20,453	58,023	8,219	597	172	171	98
1881	741,208	21,549	....	8,224	539	286	171	106
1882	749,919	21,595	....	8,903	522	410	187	203
1883	750,762	21,194	....	7,930	360	150	157	246
1884	759,849	20,353	....	7,688	342	130	95	344
1885	769,889	21,976	....	8,668	464	83	106	289
1886	780,066	20,869	....	8,114	546	124	85	338
1887	790,381	20,549	....	9,812	455	391	80	493
1888	800,836	20,349	....	7,547	521	230	107	253
1889	811,434	20,106	....	7,624	513	139	103	364
1890	822,176	20,324	69,710	7,853	536	92	77	459
1891	1,378,530	34,479	130,808	15,610	1,311	271	85	855
1892	1,406,933	35,134	....	16,843	1,580	242	116	825
1893	1,435,931	34,515	130,808	15,002	1,615	311	105	1,225
1894	1,465,637	33,994	140,545	15,073	1,679	413	74	898
1895	1,495,764	34,879	....	15,021	710	437	86	754
1896	1,526,623	34,132	....	14,685	621	436	79	930
1897	1,551,129	33,187	....	13,946	575	236	84	857
1898	1,590,295	32,356	....	13,593	520	227	98	794
1899	1,623,134	33,333	....	....	463	261	66	684
1900	1,656,662	34,303	160,233	13,650	306	168	137	741
1901	1,691,996	33,502	....	12,476	387	367	76	634
1902	1,726,604	33,857	....	13,899	438	277	51	769
1903	1,744,177	33,172	....	....	426	232	68	378

Table XXV. — Glasgow, Scotland.

YEARS.	Population.	Total Deaths.	Population of Children under 5 years of age.	Deaths of Children under 5 years of age.	Deaths from Diphtheria.	Deaths from Scarlatina.	Deaths from Typhoid Fever.	Deaths from Measles.
1880...........	....	13,303	....	6,071	150	453	278	331
1881 census ..	511,415	12,909	69,931	5,386	162	256	166	333
1882...........	....	12,985	....	5,972	177	263	162	213
1883...	....	14,476	....	6,494	132	449	167	605
1884...........	....	13,839	....	6,174	157	412	184	335
1885...........	....	13,444	....	6,156	112	288	102	430
1886...........	....	13,053	....	5,601	111	345	81	90
1887...........	....	12,055	....	5,367	174	234	100	302
1888...........	....	11,533	....	4,743	168	163	59	205
1889...........	....	12,890	....	5,970	167	109	111	594
1890...........	....	13,222	....	5,768	139	124	108	583
1891 census ..	565,710	14,149	72,481	5,432	131	201	123	400
1892...........	669,059	15,128	84,860	6,306	162	304	102	781
1893...........	677,883	15,798	85,968	6,953	208	263	120	855
1894...........	686,820	13,674	87,103	5,326	245	204	150	250
1895...........	695,876	16,332	88,250	6,458	112	180	121	330
1896...........	705,052	14,388	89,413	6,153	83	139	139	814
1897...........	714,419	15,727	90,665	6,750	97	132	172	574
1898.	724,349	15,333	91,861	6,530	103	188	223	536
1899...........	733,903	15,828	93,073	6,196	106	202	179	546
1900...........	755,730	15,924	....	6,487	125	210	158	461

NOTE.—No information obtainable from the year 1900.

Table XXVI. — Liverpool, England.

YEAR.	Population.	Total Deaths.	Population of Children under 5 years of age.	Deaths of Children under 5 years of age.	Deaths from Diphtheria.	Deaths from Scarlatina.	Deaths from Typhoid Fever.	Deaths from Measles.
1884	541,031	14,382	....	6,908	80	197	112	611
1885	537,548	13,764	....	6,213	133	190	95	716
1886	534,088	13,919	....	6,152	125	277	140	273
1887	530,649	14,006	....	6,218	95	321	130	661
1888	527,233	12,159	....	5,070	66	187	125	331
1889	523,838	13,047	....	5,921	57	352	167	485
1890	520,466	14,293	....	6,319	104	577	99	535
1891	517,145	13,911	....	5,697	63	119	92	320
1892	513,818	12,671	....	5,322	47	131	111	456
1893	510,514	13,919	....	6,035	47	231	221	273
1894	507,230	12,073	64,544	5,214	65	232	248	299
1895	638,291	16,215	78,411	7,201	97	168	192	397
1896	632,512	14,617	....	....	157	227	206	306
1897	644,129	15,590	78,411	6,972	91	209	145	344
1898	668,645	15,380	....	6,489	123	145	148	283
1899	668,645	16,269	83,042	7,039	189	164	174	320
1900	668,645	16,393	83,042	6,417	143	113	120	150
1901	686,322	15,493	85,238	6,473	158	192	154	472
1902	710,337	15,392	85,885	6,378	222	318	190	334
1903	716,810	14,210	85,885	5,786	165	201	108	132

REMOVAL OF BODIES.

During the year permits were given for the removal of 395 bodies, chiefly from one cemetery to another.

STILL-BIRTHS.

In living births a larger proportion of males than females is born each year. In still-births the proportion is vastly larger. The still-born males in the City of Boston for the year 1903 were in the ratio of 162.4 to 100 females. The appended table, XXVII., shows that there has been a steady decreasing ratio of the still-births to the total births for a period of twenty years.

TABLE XXVII. — Still-births by Months with Percentages to Total Births and Ratio to 1,000 Inhabitants for Twenty Years.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	*Total Number of Living Births.	Percentages to Total Births.	Ratio to 1,000 Inhabitants.
1884..............	44	44	28	45	42	40	49	53	45	41	46	26	503	11,479	4.20	1.17
1885.	42	41	51	36	50	41	39	42	48	38	44	48	520	11,496	4.33	1.30
1886..............	38	37	46	62	35	38	46	63	43	38	48	49	543	11,990	4.33	1.35
1887..............	45	54	40	48	36	44	34	57	37	43	48	48	534	12,137	4.21	1.33
1888..............	48	48	38	34	52	56	48	40	55	38	48	47	552	12,613	4.19	1.33
1889..............	43	51	49	54	61	59	46	50	46	51	44	44	598	12,787	4.47	1.42
1890..............	55	40	52	58	49	42	51	49	54	50	68	59	627	13,289	4.50	1.39
1891..............	46	47	58	48	55	51	56	49	40	50	57	57	614	13,957	4.21	1.33
1892..............	44	48	51	57	60	58	51	55	44	54	57	54	633	15,154	4.01	1.34
1893..............	54	49	52	59	42	41	51	57	51	38	50	61	605	14,602	3.98	1.24
1894........... ...	56	56	60	50	69	82	49	45	52	72	65	44	700	15,401	4.35	1.39
1895..............	38	47	52	62	41	58	56	63	50	39	51	50	607	15,613	3.74	1.21
1896..............	69	48	51	48	44	57	51	62	50	51	58	59	648	16,484	3.71	1.25
1897..	52	55	61	55	62	43	42	46	58	52	40	48	614	16,973	3.49	1.16

1898..............	50	48	49	61	56	45	55	36	54	49	52	58	613	16,680	3.54	1.13
1899..............	46	60	41	43	46	52	41	43	35	37	56	39	539	16,247	3.21	.97
1900..............	51	36	63	53	47	41	49	46	42	57	41	47	573	16,420	3.39	1.02
1901..............	42	50	45	42	56	46	40	55	44	58	37	61	576	15,580	3.56	1.00
1902..............	51	50	45	66	37	59	39	66	55	42	50	63	623	15,549	3.85	1.06
1903..............	58	51	51	53	61	60	53	54	51	55	44	44	635	† 16,000	3.82	1.06
Totals.....	972	960	983	1,034	1,001	1,013	946	1,031	954	953	1,004	1,006	11,857	290,451	—	—
Average.......	49	48	49	52	50	51	47	51	48	48	50	50	593	14,522	—	—

* Taken from the records of the City Registrar.

† Estimated.

Table XXVIII.—Cremations in the United States, 1876-1903, Inclusive.

CREMATION.

For centuries the method of disposal of the dead was entombment and earth-burial. About a quarter of a century ago cremation of dead bodies was introduced, and this method is now gradually spreading among civilized nations, as will be seen by the following table:

In order to ascertain the annual increasing number of cremations, official inquiries were addressed to the superintendents of the different crematories in the United States and Europe.

CREMATORIES.	Date established.	1876 to 1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
New York City (U. S. Cremation Co.)	1885	....	....	9	77	67	83	106	160	187	186	232	243	296	330	331	466	528	602	654	647	720
Buffalo, N. Y.	1885	....	....	1	8	17	16	23	30	38	27	30	31	41	28	44	40	43	67	50	60	55
Troy, N. Y.	1890	..	....	....	....	. .	....	....	4	10	14	15	12	10	18	14	13	20	16	19	23	20
Swinburne Island, N. Y.	1889	....	....	....	....	....	....	....	2	....	60	28	8	1	1	3	3	4	2	3	3	2
Waterville, N. Y.	1893	....	....	....	....	....	....	....	....	....	....	1	1	6	5	4	4	6	10	1	6	1
St. Louis, Mo.	1888	....	....	....	....	....	21	20	42	60	64	72	87	96	86	118	109	123	142	135	136	165
Philadelphia, Pa.	1888	....	....	....	....	....	14	28	31	51	62	68	74	88	85	78	114	99	118	118	130	158
San Francisco, Cal. (Odd Fellows')	1895	....	....	. ..	....	....	....	...	....	....	....	....	....	66	101	214	260	347	547	666	614	695
Boston, Mass.	1893	....	....	....	....	....	...	....	....	....	..	1	87	88	135	160	167	235	188	171	217	225
Cincinnati, O.	1887	...	....	....	....	11	21	34	45	43	34	42	38	66	46	71	59	56	81	89	69	79
San Francisco, Cal. (Cypress Lawn)	1893	....	....	....	....	....	....	....	....	....	....	42	111	88	70	54	65	107	98	91	352	169
Chicago, Ill.	1893	....	....	....	....	....	....	....	....	....	....	6	42	66	54	82	130	127	188	182	200	201
Los Angeles, Cal.	1887	....	....	....	....	7	5	12	17	29	41	37	38	37	37	34	58	52	52	66	....	83

Detroit, Mich.	1887	....	....	....	....	8	10	14	24	21	33	47	22	31	29	44	51	58	31	56	....	....
Pittsburg, Pa.	1886	....	....	....	14	9	11	8	9	13	14	13	10	13	14	16	23	19	31	24	20	19
Baltimore, Md.	1889	....	....	....	....	....	....	3	5	12	16	22	15	11	17	21	14	22	18	22	18	11
Lancaster, Pa.	1884	....	3	36	14	13	6	1	3	1	3	5	2	1	1	1	2	4	2	2	5	....
Davenport, Ia.	1891	..	....	....	....	....	....	....	....	6	7	13	8	8	9	23	17	18	24	29	31	30
Milwaukee, Wis.	1895	....	....	....	....	....	....	....	....	....	....	....	....	......	21	34	30	53	40	45	51	50
Washington, D. C.	1896	....	....	....	....	....	....	....	....	....	....	....	....	......	......	25	38	25	24	33	32	42
Pasadena, Cal.	1895	....	....	....	....	....	....	....	....	....	....	....	....	4	14	13	24	31	26	46	53	51
Washington, Pa.	1876	25	13	1	1	....	....	....	....	....	....	....	2	......	......	......	......	......	1	1	....	....
St. Paul, Minn.	1897	....	....	....	....	....	....	....	....	....	....	....	....	......	......	2	11	32	17	20	20	15
Fort Wayne, Ind.	1895	....	....	....	....	....	....	....	....	....	....	....	....	......	......	5	1	3	4	4	6	2
Mt. Auburn, Mass. (Cambridge)	1900	....	....	....	....	....	....	....	....	....	....	....	....	......	......	......	......	......	50	119	134	153
Totals	......	25	16	47	114	127	190	249	372	471	561	674	831	1,017	1,101	1,391	1,699	2,012	2,379	2,646	....	....

Table XXIX.—Summary of Crematories and Cremations in Several European Cities.

	CREMATORIES.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
Germany.	Gotha	1	17	16	33	33	46	69	76	95	110	95	128	111	162	162	153	139	132	147	188	179	200	189	218	234	276
	Heidelburg	....	....	....	....	....	....	....	....	....	....	....	....	....	3	57	50	79	91	96	105	125	151	146	104	164	....
	Hamburg	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	48	98	41	70	81	98	111	145	181	187	....
	Jena	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	21	46	47	81	91	123
	Offenbach	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	110	82	128	118
	Total	1	17	16	33	33	46	69	76	95	110	95	128	111	165	221	251	316	264	313	374	423	513	637	666	804	....
England.	London (Woking),	....	....	....	....	....	....	....	3	10	13	28	46	54	99	104	101	125	150	137	173	240	240	301	273	275	*301
	Manchester	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	20	47	58	52	51	62	88	84	96	81	86
	Glasgow	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	10	16	12	16	20	18	20	24
	Liverpool	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	7	23	23	40	9	40	54	38
	Total	....	....	....	....	....	....	....	3	10	13	28	46	54	99	107	121	172	209	206	263	337	384	414	427	430	449
Sweden.	Stockholm	....	....	....	....	....	....	....	....	....	13	23	46	27	48	41	51	42	31	47	54	49	54	54	46	46	48
	Gottenburg	....	....	....	....	....	....	....	....	....	....	....	....	11	9	11	12	7	3	14	19	24	21	16	16	20	19
	Total	....	..	....	....	....	....	....	....	....	13	23	46	38	57	52	63	49	34	61	73	73	75	70	62	66	67

France.	Paris	...	...	...	...	...	...	...	...	...	...	...	749	3,388	3,741	3,974	3,911	3,992	4,180	4,423	4,197	4,513	4,554	5,825	†310	300	270
	Rouen	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	4	...	...	...
	Total	...	...	...	...	...	...	...	...	...	...	...	749	3,388	3,741	3,974	3,911	3,992	4,180	4,423	4,197	4,513	4,559	5,829	...	...	...
Switzerland.	Zurich	...	...	...	...	...	...	...	...	...	...	...	21	32	39	39	41	40	44	64	69	82	81	116	126	159	158
	Basil	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	17	14	20	17	30	30
	Total	...	...	...	...	...	...	...	...	...	...	...	21	32	39	39	41	40	44	64	69	99	95	136	143	189	188
Denmark.	Copenhagen	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	12	18	21	14	18	28	28	34	44	51

* Woking 143 and Golder's Green 158 (now called The London Cremation Co., Ltd.).

† The discrepancy is unexplainable.

Table XXX. — Summary of Cremations in Italian Cities.

*CITIES.	Date of Inaugu-ration.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.
ITALY.																													
Milan	1876	2	9	14	25	40	70	67	44	61	70	61	55	76	85	72	65	66	74	72	64	65	104	92	99	92	107	107	92
Lodi	1877	....	6	2	2	5	5	2	2	2	1	4	1	3	3	3	3	1	3	....	1	..	....	....	....	1	....	....	....
Rome	1883	...	....	....	...	....	....	...	15	29	43	32	33	59	90	74	47	75	55	61	54	49	37	29	55	52	22	....	....
Cremono	"	....	....	..	....	....	....	....	4	15	5	25	9	10	10	5	8	4	3	4	7	3	3	2	3	6	....	....	....
Brescia	"	....	....	....	....	....	....	....	5	2	2	5	4	3	2	2	4	1	1	3	2	1	3	3	3	2	....	....	....
Iadue	1884	....	....	....	....	....	....	....	....	4	5	5	4	7	5	6	4	3	8	3	3	4	2	3	4	....	....	..	....
Udine	"	....	....	....	....	....	....	....	....	2	4	5	....	4	2	3	2	6	2	2	2	1	1	3	2	6	2	...	7
Varese	"	....	....	....	....	....	....	....	....	1	1	1	5	....	5	....	1	2	1	..	1	3	3	2	2	....	....	....	....
Spezia	1885	....	....	....	....	....	..	....	....	....	1	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	5	...	3
Novara	"	....	....	....	....	....	....	....	...	....	1	2	2	1	3	1	....	7	1	3	1	1	1	2	4	....	..	....	....
Florence	"	....	....	....	....	....	....	....	..	....	14	16	26	18	21	20	16	24	18	19	24	11	14	13	14	17	20	20	24
Livorno	"	....	....	....	....	....	....	....	....	....	8	13	20	10	20	26	9	16	16	11	9	24	9	13	13	14	22	25	19
Asti	"	....	....	....	....	....	....	....	....	....	1	....	4	3	3	2	3	4	....	2	....	1	....	4	....	1	...	....	....
Pisa	"	..	....	....	....	....	....	....	....	....	8	3	1	3	2	8	1	7	6	7	3	1	2	2	6	10	....	....	....
Alexandria	1886	....	....	....	....	....	....	.	....	...	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....
Como	"	....	....	....	....	....	....	....	. ..	....	....	5	2	2	3	1	2	2	2	....	1	1	3	2	1	1	..	1	1
Turin	1887	....	....	....	...	....	....	..	....	....	...	....	1	18	12	10	28	14	22	21	11	22	17	28	14	19	23	17	24

Mantua	1887	....	....	....	....	....	....	....	....	....	....	....	1	1	2	1	3	4	8	3	4	....	3	2	4	1	....	....	....
St. Remo	1888	....	....	....	....	....	....	....	....	....	....	....	....	5	10	10	9	9	9	4	7	5	5	11	6	6	10	4	8
Verona	"	....	....	....	....	....	....	....	....	....	....	....	....	3	2	2	2	1	....	3	1	....	3	1	1	1	2	1	2
Bologna	1889	....	...	....	....	....	....	....	....	....	....	....	....	....	2	10	12	5	11	3	11	14	20	19	26	22	21	26	26
Modena	1890	....	....	....	....	....	....	....	....	....	....	....	....	...	....	2	1	4	1	2	3	3	....	3	1	4	....	....	....
Venice	1891	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	7	5	5	5	3	7	4	4	2	7	3	8
Spoleto	1894	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...	....	....	....	....	....	....	....	....	....	....	....	....
Terugia	1895	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...	....	....	....	6	4	2	2	3	4	....	....	....
Sienna	"	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...	....	....	...	3	2	1	....	....	...	2	3
Bera	1897	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...	....	....	...	....	....	....	1	....	....	1	....	....	....
Total	....	2	15	16	27	45	75	69	70	116	164	180	168	227	282	258	221	262	246	228	220	219	242	241	265	262	....	....	....

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* Dott-Lodovico Forresti Statistica delle Cremazioni esequila in Europa Nel Sicolo XIX., 1876–1900. Edito a cura della Società di Cremazioni in Bologna.

Nuisances Abated.

The following table shows the number of nuisances abated by owners or occupants of premises upon notice from the Board of Health:

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
House drains repaired	225	146	140	149	188	192	191	140	188	135	107	128	1,929
Vaults cleaned and repaired	......	9	15	11	9	10	14	10	9	10	25	1	123
Traps supplied	46	30	36	38	68	53	40	57	56	46	37	31	538
Yards cleaned	99	88	390	286	123	179	171	112	95	142	56	34	1,775
Cellars cleaned	191	124	157	162	112	176	186	118	135	122	75	103	1,661
Cesspools cleaned	5	18	35	50	37	17	43	39	59	19	38	7	367
Water-closets cleaned and repaired	425	101	145	146	182	408	256	172	215	183	139	215	2,587
Number of places from which fowls were removed	17	2	15	11	14	11	16	14	14	7	6	3	130
Supply pipes repaired	97	42	28	15	28	28	27	12	24	21	21	46	389
General cleaning and repairing	143	95	57	63	84	131	82	39	64	103	29	72	962
Dark rooms corrected	55	52	19	17	12	23	24	11	17	29	27	28	314
Dark and unventilated water-closets remedied	61	32	40	51	42	101	85	41	95	109	64	89	810
Exposed manure removed	1	......	4	7	5	1	4	2	1	3	......	......	28
Passageways cleaned	48	26	80	82	34	41	53	30	25	42	15	7	483

Sheds cleaned	42	30	23	39	40	104	135	21	22	65	14	3	538
Tenements whitewashed	6	22	31	86	112	413	355	162	88	71	39	33	1,418
Stables cleaned	2	1	7	12	9	4	9	2	5	4	2	1	58
Sundry nuisances abated	26	18	61	56	42	40	64	60	48	47	28	13	503
Rain conductors repaired	9	4	3	15	13	9	13	24	15	11	7	6	129
Roofs repaired	7	4	11	9	6	20	13	9	5	9	2	2	97
Receptacles provided for garbage	14	24	82	67	22	36	33	45	26	31	15	11	406
Places from which swine were removed	......	1	1	......	1	......	......	......	......	2	3	......	8
Stagnant water removed from vacant lots	......	......	8	25	24	3	16	1	2	1	......	......	80
Vacant lots cleaned	6	2	32	22	33	11	16	6	5	6	5	2	146
Houses cleared of dead rats	1	......	2	1	3	3	2	......	......	......	1	......	13
Overcrowded rooms relieved	35	9	7	2	1	5	5	9	3	7	6	17	106
Gas-pipes repaired	4	......	......	3	44	4	30	20	46	25	36	40	252
Total	1,565	880	1,429	1,425	1,288	2,023	1,883	1,156	1,262	1,250	797	892	15,850

REPORT OF DISINFECTION FOR THE YEAR 1903.

Diphtheria	1,922
Scarlet Fever	1,454
Measles	18
Phthisis	1,380
Smallpox	69
Chickenpox	0
Cancer	19
Typhoid Fever	17
Glanders	194
Infected bedding, etc., lots,	119
" books, etc., "	680
" clothing, etc., "	246
" carriages	24
" schools	157
Total	6,299

Rooms disinfected	9,911
Streets	320
Places	1,584
Courts	1,516
Alleys	3,811
Passageways	4,007
Yards	9,993
Vaults	0
Cellars	8,600
Gutters	5,062
Water-closets	8,771
Urinals	169
Vacant lots	513
Filthy rooms	4,335
Filthy sheds	7,287
Sinks	10,834
Cesspools	9,074
Total	75,876

Materials Used.

Formaldehyde	1,975	gallons
Alcohol for heat	850	"
Chloride of lime	53,000	lbs.
Bichloride of mercury	925	"
Chloride of sodium (in mixing)	1,100	"

Table XXXI.—Comparative Death-rates per 10,000 Inhabitants from Pulmonary Tuberculosis in some American and Foreign Cities for Ten Years, 1894-1903, inclusive.*

YEARS.	Boston, Mass.	Philadelphia, Pa.	New York, N.Y. (old city).	Chicago, Ill.	Brooklyn, N.Y. (old city).	St. Louis, Mo.	London, England.	Paris, France.	Berlin, Germany.	Vienna, Austria.	Glasgow, Scotland.	Liverpool, England.
1894	29.27	22.05	25.74	13.75	23.55	16.20	17.34	39.61	24.33	....	22.71	21.11
1895	26.92	21.04	27.86	13.56	23.17	17.85	18.15	42.25	24.07	....	22.76	17.24
1896	25.72	21.15	26.20	14.27	21.89	18.00	17.59	38.88	23.35	41.60	19.03	18.94
1897	24.37	19.66	24.95	13.41	20.40	16.61	17.62	37.02	21.94	39.31	19.86	18.94
1898	22.90	20.88	25.08	14.64	21.86	16.07	17.68	38.43	20.99	35.40	19.38	18.08
1899	22.27	22.23	26.00	12.90	21.51	17.04	18.88	39.40	22.42	38.67	19.67	19.64
1900	22.23	21.00	25.69	15.30	20.90	17.49	17.50	40.10	24.52	38.46	19.08	19.25
1901	22.96	22.29	24.97	14.19	20.46	18.86	18.18	40.51	21.93	36.23	18.55	18.97
1902	20.65	21.07	22.87	14.04	18.78	18.21	16.64	42.55	20.41	34.40	16.72	18.93
1903	20.05	22.14	24.07	14.26	18.55	17.46	15.92	38.93	19.31	34.14	15.82	17.55

*The death-rates were calculated on the official figures sent from the above cities.

MEDICAL INSPECTION OF SCHOOLS.

TABULATION OF REPORTS OF MEDICAL INSPECTORS OF SCHOOLS AND AGENTS OF THE BOARD OF HEALTH, OF BOSTON, FOR THE YEAR 1903.

List of Diseases Found in the Schools.

I. — SPECIFIC INFECTIOUS DISEASES.

Diphtheria	32
Scarlet fever	29
Measles	121
Whooping-cough	202
Mumps	70
Chickenpox	67
Influenza	44
Syphilis	1
Tuberculosis	7
Malaria	4
	577

II. — DISEASES OF THE ORAL AND RESPIRATORY TRACT.

1. Mouth.

Stomatitis :	
(*a*) Simple (erythematous),	4
Alveolar abscess	16

2. Pharynx.

Acute pharyngitis	180
Hypertrophic pharyngitis (acute and chronic)	25

3. Tonsils.

Acute follicular tonsillitis	598
Hypertrophic tonsillitis	219
Abscess	2

4. Uvula.

Elongation	5

5. Nose.

Acute rhinitis	64
Chronic rhinitis	8
Purulent rhinitis	1
Ozaena	1
Epistaxis	10

6. Naso-Pharynx.

Naso-pharyngitis (post-nasal catarrh)	26
Adenoid disease	187

7. Larynx.

Acute laryngitis	23
Chronic laryngitis	4

8. Bronchi.

Acute bronchitis	192
Chronic bronchitis	2
	1,567

III. — DISEASES OF THE EAR.

Foreign bodies (cerumen, etc.)	4
Otitis media, catarrhal, chronic	6
Otitis media, suppurative, acute	11
Otitis media, suppurative, chronic	79
Imperfect hearing (without visible cause)	19
	119

IV. — DISEASES OF THE EYE.

1. Foreign bodies	40

2. Eyelids.

Blepharitis	57
Stye	33
Trachoma	2

3. Lachrymal Organs.

Obstruction of duct	2

4. *Conjunctiva.*

Conjunctivitis:	
(*a*) Acute catarrhal	201
(*b*) Purulent	13
(*c*) Phlyctenular	7
(*d*) Granular	37

5. *Cornea.*

Interstitial keratitis	6
Ulcer	5
Opacity	16

6. *Iris.*

Iritis	2

7. *Muscles.*

Strabismus	72
Nystagmus	1
Paralysis of extra-ocular muscles	1
Imperfect sight (without visible cause)	247
	742

V. — DISEASES OF THE SKIN.

Acne	45
Alopecia areata	15
Dermatitis	81
Eczema	374
Erythema multiforme	1
Erythema simplex	13
Furunculus	23
Herpes simplex	72
zoster	2
Impetigo contagiosa	356
Pediculosis	3,730
Pemphigus	9
Pruritus	4
Psoriasis	2
Scabies	164
Seborrhœa	26
Tinea favosa	16
tricophytina	159
Urticaria	36
Verruca	9
	5,137

VI. — MISCELLANEOUS DISEASES.

Anæmia	36
Debility	125
Headache (habitual)	117
Cervical adenitis	108
Chorea	12
Ulcer	23
Deformities (spinal and extremities)	22
Sprains	34
Fractures	8
Contusions	66
Wounds	123
Abscess	42
Dental caries (painful)	27
Neuralgia	11
Epilepsy	8
Rheumatism	17
Cardiac diseases	8
Gastric diseases	68
Intestinal diseases	11
Urinary diseases	9
Vaccinations (performed)	272
Certificates of vaccination	3,250
Unclassified	88
	4,485

SUMMARY.

Specific infectious diseases	577
Oral and respiratory diseases	1,567
Diseases of the ear	119
Diseases of the eye	742
Diseases of the skin	5,137
Miscellaneous diseases	4,485
* Found free from disease	9,417
Total	22,044

Number of pupils examined in the schools	22,044
Number recommended to be sent home	3,721
Number consultations with teachers (about pupils returning to school, etc.)	2,649

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* Includes about 3,000 found free from pediculi.

MEDICAL INSPECTORS AND SCHOOLS.

Dist.

1. F. J. Cotton, M.D., 416 Marlboro street, city (Tel. B. B. 2516–3), Hancock Grammar and Eliot Grammar and their Primaries.
2. M. P. Smithwick, M.D., 156 Mt. Vernon street, city (Tel. Hay. 1519), St. Mary's, St. Stephen's, St. Leonard, Sacred Heart Parochials, Moon-street Primary.
3. W. S. Boardman, M.D., 63 Mt. Vernon street, city (Tel. Hay. 2184), district work only.
4. C. Morton Smith, M.D., 437 Marlboro' street, city (Tel. B. B. 731), Prince Grammar and Primaries, and Horace Mann School for Deaf.
5. G. S. C. Badger, M.D., 485 Beacon street, city (Tel. B. B. 1128–2), Quincy Grammar and Winthrop Grammar and their Primaries.
6. J. L. Ames, M.D., 72 Chestnut street, city (Tel. Hay. 1188), Brimmer Grammar and Primaries and St. James' Parochial.
7. S. H. Ayer, M.D., 318 Shawmut avenue, city (Tel. Tre. 663), Franklin Grammar and Rice Grammar and their Primaries, Cathedral, Sanctuary Choir and Holy Trinity, German, Parochials.
8. T. C. Erb, M.D., 159 St. Botolph street, city (Tel. B. B. 1607), Dwight Grammar and Everett Grammar and their Primaries.
9. A. W. Fairbanks, M.D., 362 Commonwealth avenue, city (Tel. B. B. 84), Sherwin Grammar and Hyde Grammar and their Primaries.
10. J. S. Brownrigg, M.D., 16 Delle avenue, Rox. (Tel. Rox. 258), Dudley and Dillaway Grammars and their Primaries, and St. Francis' Parochial.
11. H. J. Perry, M.D., 636 Beacon street, city (Tel. B. B. 996), Martin Grammar and Comins Grammar and their Primaries.
12. D. N. Blakeley, M.D., 200 Warren street, Rox. (Tel. Rox. 628–2), Dearborn Grammar and Primaries.
13. T. J. Murphy, M.D., 372 Dudley street, Rox. (Tel. Rox. 570), Hugh O'Brien Grammar and Primaries, St. Patrick's Parochial.
14. M. J. Cronin, M.D., 470 Warren street, Rox. (Tel. Rox. 382), Lewis Grammar and Primaries, Roxbury High School and St. Joseph's Parochial.
15. J. E. Butler, M.D., 310 Warren street, Rox. (Tel. Rox. 877–9), Phillips Brooks Grammar and Primaries and St. John's Parochial.

Dist.

16. J. C. D. Pigeon, M.D., 27 Elm Hill avenue, Rox. (Tel. Rox. 1236–2), George Putnam Grammar and Primaries and West Roxbury High School.

17. H. M. Emmons, M.D., 335 Centre street, J. P. (Tel. J. P. 356–3), Lowell Grammar and Primaries, Cheverus and Smith-street Parochial.

18. J. S. H. Leard, M.D., 392 Arborway, J. P. (Tel. Jam. 417–3), Agassiz Grammar and Bowditch Grammar and their Primaries.

19. J. P. Broidrick, M.D., 67 South street, J. P. (Tel. Jam. 268–2), Charles Sumner and Primaries and Leo XIII. Parochials.

20. H. B. Stevens, M.D., 79 Park street, W. R. (Tel. Jam. 657–2), Longfellow Grammar and Primaries.

21. F. C. Jillson, M.D., 11 Hastings street, W. R. (Tel. Jam. 270), Robert G. Shaw Grammar and Primaries.

22. J. T. Cutler, M.D., 20 Crawford street, Rox. (Tel. Rox. 1246–3), Edward Everett Grammar and Primaries and Harbor View-street Primary.

23. D. G. Eldridge, M.D., 15 Monadnock street, Dor. (Tel. Dor. 341–2), Mather Grammar and Primaries and St. Peter's Parochial.

24. A. B. Coffin, M.D., 10 Rosedale street, Dor. (Tel. Dor. 77–3), Christopher Gibson Grammar and Primaries.

25. R. M. Merrick, M.D., 15 Adams street, Dor. (Tel. Dor. 88–2), Mary Hemenway Grammar and Primaries.

26. J. M. Connolly, M.D., 183 Harvard street, Dor. (Tel. Dor. 816–2), Henry L. Pierce Grammar and Primaries and Dorchester High School.

27. J. S. Greene, M.D., 1107 Washington street, Dor. (Tel Mil. 58–2), Roger Wolcott Grammar and Primaries.

28. W. H. Parker, M.D., 1773 Dorchester avenue, Dor. (Tel. Dor. 364), Gilbert Stuart and Minot Grammars and their Primaries.

29. W. P. Coues, M.D., 90 Charles street, city (Tel. Hay. 1535–2), Wells Grammar, Phillips Grammar and Bowdoin Grammar and their Primaries.

30. H. F. R. Watts, M.D., 6 Monadnock street, Dor. (Tel. Dor. 16–2), John A. Andrew Grammar and William E. Russell Grammar and their Primaries, with the exception of the Harbor View-street Primary.

Dist.

31. R. M. Cole, M.D., 456 Broadway, S. B. (Tel. S. B. 464–2), Shurtleff Grammar and Primaries and South Boston High School.
32. W. B. Bancroft, M.D., 597 Broadway, S. B. (Tel. S. B. 215–3), Thomas N. Hart Grammar and Primaries and Gate of Heaven Parochial.
33. G. P. Morris, M.D., 702 Broadway, S. B. (Tel. S. B. 201–4), Gaston Grammar and Lincoln Grammar and their Primaries.
34. J. H. Sherman, M.D., 534 Broadway, S. B. (Tel. S. B. 228–2), Bigelow Grammar and Primaries and F-street German Parochial
35. F. W. Stuart, M.D., 550 Broadway, S. B. (Tel. S. B. 210), Norcross Grammar and Primaries and St. Augustine Parochial.
36. F. J. Weller, M.D., 580 Broadway, S. B. (Tel. S. B. 270), Lawrence Grammar and Primaries and SS. Peter and Paul Parochial.
37. J. G. Dearborn, M.D., 2 Wood street, C. D. (Tel. C. D. 414), Harvard Grammar and Primaries and St. Mary's Parochial.
38. Francis Magurn, M.D., 112 Main street, C. D. (Tel. C. D. 278–4), Frothingham Grammar and Primaries.
39. Joseph Williams, M.D., 32 Monument square, C. D. (Tel. C. D. 385–2), Warren Grammar and Primaries.
40. W. J. McNally, M.D., 31 Monument square, C. D. (Tel. C. D. 495–2) Prescott Grammar and Primaries and Charlestown High School.
41. J. F. O'Brien, M.D., 401 Bunker Hill street, C. D. (Tel. C. D. 200), Bunker Hill Grammar and Primaries and St. Francis de Sales Parochial.
42. W. H. Ensworth, M.D., 40 Princeton street, E. B. (Tel. E. B. 219–2), Adams Grammar and Primaries and Boys' and Girls' Assumption Parochials.
43. E. F. O'Shea, M.D., 5 Chelsea street, E. B. (Tel. E. B. 259–3), Lyman Grammar and Primaries, East Boston High and Holy Redeemer Parochial.
44. W. H. Grainger, M.D., 408 Meridian street, E. B. (Tel. E. B. 212), Chapman Grammar and Primaries and Sacred Heart Parochial.
45. H. L. Plummer, M.D., 728 Saratoga street, E. B. (Tel. E. B. 334–2), Emerson Grammar and Primaries and Star of the Sea Parochial.
46. O. H. Marion, M.D., 22 Harvard avenue, Allston, (Tel. B. D. 172–2), Washington Allston Grammar, Harvard Primary, Everett Primary, and Webster-avenue Primary.

Dist.

47. H. S. Rowen, M.D., 30 Bennett street, B. D. (Tel. B. S. 73–2), William Wirt Warren Primary, Auburn Primary, Hobart-street Primary and Oak-square Primary, and the St. Columbkille Parochial.

48. H. E. Marion, M.D., 5 Sparhawk street, B. D. (Tel. B. D. 45–2), Brighton High, Bennett Grammar, Winship Primary and Aberdeen Primary.

49. W. F. Temple, M.D., 240 Huntington avenue, (City Tel. B. B. 622), Normal, Boys' Latin, English High, Girls' Latin, Girls' High and the Mechanic Arts High Schools.

CULTURE STATIONS.

To insure *free* delivery at the laboratory the same day, specimens must reach the stations before the hours given below. After these hours and up to 9 P.M. cultures may be sent, *at the physician's expense*, direct to laboratory.

			Time Limit for Specimens. P.M.
Laboratory,	739 Boylston street,	City,	6.00
Baker, Chester A.,	Mass. ave., cor. Boylston street,	"	5.30
Burden, R. M., & Co.,	308 Hanover street,	"	5.00
Canning, Henry,	109 Green street,	"	4.30
Colley, Frank,	610 Tremont street,	"	4.30
Connelly's Pharmacy,	146 Harrison avenue,	"	5.00
Corner, William,	Washington st., cor. Mass. avenue,	"	4.30
Countie, C. J., & Co.,	29 Charles street,	"	5.00
Guild, Frank O.,	Boylston and Exeter streets,	"	5.30
Hubbell & McGowan,	Mass., cor. Huntington avenue,	"	5.00
Metcalf, Theo., Co.,	Copley square,	"	5.00
Metcalf, Theo., Co.,	39 Tremont street,	"	4.00
Pratt, Fred L.,	575 Columbus avenue,	"	5.00
Sheppard, S. A. D.,	Dover and Washington streets,	"	4.00
Wheeler, W. D.,	Mass. avenue and Beacon street,	"	5.30
Downey & McCormick,	Thompson square,	Charlestown,	4.00
Draper, William C.,	Sullivan square,	"	4.00
Clark & Mahoney,	101 Saratoga street,	East Boston,	4.00
Clark & Mahoney,	714 Saratoga street,	"	3.30
Cramer, Max,	1212 Columbus avenue,	Roxbury,	4.00
Gavin, A. L.,	Warren and Regent streets,	"	4.00
Walker, G. W.,	648 Warren street,	"	4.00
Reid, T. T.,	3101 Washington street,	"	4.00
Sawyer, W. F.,	1152 Tremont street,	"	4.30
Somers, M. W.,	210 Blue Hill avenue,	"	4.00
Alexander, G. H.,	100 Dorchester street,	South Boston,	3.00
Flynn, C. P.,	Dorch. ave. and Dorch. street,	"	4.00
Jones, J. T.,	855 Fourth street,	"	3.00
Cuddyer & Joyce,	141 West Broadway,	"	4.30
Archer, Fred W.,	1181 Washington street,	Dorchester,	2.00
Connolly & Davis,	1434 Dorchester avenue,	"	4.00
Connolly & Davis,	760 Washington street,	"	4.00
Connolly & Davis,	64 Walnut street, Neponset,	"	4.00
Copley, A. H.,	544 Columbia road,	"	3.30
Fairfield, Wm. H.,	1758 Dorchester avenue,	"	4.30
Harring & Teele,	Harvard and Washington streets,	"	4.00
Tripp, A. H.,	573 Talbot avenue,	"	4.00
Tessier Bros.,	Dorch. and Savin Hill avenues,	"	4.30
Ernst, Frank F.,	186 Lamartine street,	Jamaica Plain,	4.30
Ernst, Frank F.,	281 Centre street,	"	4.30
Flynn, George W.,	154 Green street,	"	4.30
Rogers, C. B., & Co.,	701 Centre street,	"	4.30
Jeffers, S. T.,	738 South street,	Roslindale,	3.00
Swallow, F. O.,	1904 Centre street,	West Roxbury,	1.00
Moore, S. M.,	373 Cambridge street,	Allston,	4.30
Warren, G. W.,	343 Washington street,	Brighton,	4.00

Outfits for *diphtheria*, *tuberculosis*, *typhoid*, and *malaria* may be obtained at any of the above stations. Outfits for other bacterial examinations will be mailed on request by telephone (1500 Back Bay) or by letter to the laboratory.

Diphtheria and *tuberculosis* specimens may be returned to the culture stations for transmission to the laboratory.

Typhoid and *malaria* preparations must be forwarded by mail.

The above italicized drug stores are both city culture stations and (free) State antitoxin stations. The following are (free) antitoxin stations, but not culture stations :

Pengilly Drug Co.,	**2845 Washington street,**	**Roxbury.**
Hart, K. J.,	**1100 and 1270 Dorchester avenue,**	**Dorchester.**
Howe & Co.,	**14 Franklin street,**	**Allston.**
Pierce, G. L.,	**Paul Gore and Lamartine streets,**	**Jamaica Plain.**
State Board of Health,	**141 State House,**	**City.**

HOSPITAL FOR CONSUMPTION.

The pressing need of greater hospital accommodations for consumptive patients is brought to our attention with constantly increasing force. The moderate provision which has been made at Long Island is good, as far as it goes, but is altogether inadequate to meet the demand for the care of even the most abject cases.

Consumption is one of the infectious diseases, dangerous to the public health, and susceptible of curative treatment. It presents a large number of indigent, advanced, and helpless cases. Its proper care demands official interference, isolation, support, and control in the interest of public health and humanity. The city does not willingly discriminate against consumptives in her charity, or in her efforts to control infectious diseases, but, as a matter of fact, in practice it does. The city furnishes hospital accommodations and care for smallpox, scarlet fever, diphtheria, measles, and consumption. For the first four diseases the city provides 450 beds, an up-to-date, wise, and paying provision, and from these four diseases we get an annual mortality of 3.21 per cent. of the total mortality. For consumption the city provides 40 beds, and gets a yearly mortality of no less than 11.33 per cent. of the total mortality. This number of beds for consumption is not equal to the demand for even the most serious and helpless cases, while the less severe cases cannot be considered at all for hospital care. It must be evident to all that an infectious disease whose annual deaths amount to 11.33 per cent. of our total mortality should have hospital provision for all such cases as cannot otherwise be cared for with safety to the public. The Board of Health does not desire to further embarrass the financial condition of the city, or those by whom hospital provision must be decided. It seeks only to present facts as they appear to us, and to urge the importance of their early consideration by the Mayor and City Council.

MILK.

The inspection of milk and other dairy products, as authorized by chapter 206, Laws of 1859, and now under chapter 56, Revised Laws, pertaining to their chemical composition, has been vigorously and justly carried on by the inspector, Dr. Harrington, from year to year, with increasing success, and great advantage to the consumers. This law was reinforced in 1898 by regulations made and adopted by the Board of Health, which imposes greater care on the part of the producer, the contractor, and the retailer in securing the delivery of cleaner and uninfected milk. These regulations have been advertised in the city, and sent to thousands beyond the city limits, who produce milk for consumption in Boston. Their enforcement has lessened the chances of infection at the sources of supply, diminished the most faulty handling of milk, and cut off many retail licensees and producers in the city whose personal habits and environment were too unclean for the business.

The next step in the interest of cleaner milk is about to be taken by the Board of Health, by which the temperature of the milk at the time it reaches the city, and until its delivery to the consumer, must be at or above 50° Fahrenheit, and the number of bacteria found in the milk must not exceed five hundred thousand to each cubic centimeter of the milk. This will impose new duties and a moderate additional expense to the department for the collection of samples, making the bacterial counts, and taking the temperatures. This bacterial limit, though large, calls for an improvement on the ordinary condition of the milk, and will undoubtedly be cut down from time to time, after the work has been begun.

MOSQUITOES.

Wet, rotten, and spongy lands, including small ponds of stagnant water, continue to claim a considerable amount of attention in the warm season whenever the water becomes stagnant with odors at all perceptible.

Much greater importance has been attached to these places in recent years by reason of the newly recognized fact that not only are these little quiet puddles of stagnant water and wet lands the breeding places and habitat of the mosquito, but that at least one variety of the mosquito family is the necessary medium by which malaria is communicated from one person to another. We also know that this particular variety of mosquito is resident in many parts of our city, with all the rights, privileges, and activities of the rest of the much despised family, and to the casual observer his appearance does not differ from many other common and less dangerous mosquitoes.

The fact must appear evident that the conditions described constitute a menace to the health of the city, and that the Board of Health is warranted in holding the owner of such pools and wet lands responsible for their proper care and treatment. The best remedy is to thoroughly drain off or fill up such places, and never allow water to remain on them for more than ten or twelve days at a time in warm weather.

This work has been pushed as fast as the department has found it practicable. Meantime, since 1900, the Board has caused such places to be sprinkled with oil, and this to be repeated every twelve days during the warm season. This treatment, if thoroughly carried out, kills a large portion of the mosquito larvæ while undergoing development in the water.

TENEMENT HOUSES.

There is little new to be said concerning tenement house conditions of our city. A commission of seven well known gentlemen have been appointed by His Honor the Mayor to investigate and report to him the present condition and needs of the tenement houses in Boston. This commission is earnestly at work, with everything in favor of their gaining complete knowledge of the tenement house conditions here and elsewhere of the changes necessary and of the means by which these changes may be hastened and brought about with less friction than under our present building laws. Their report will be looked for and appreciated by no one more than by the members of the Board of Health, whose efforts may be made more effective and less difficult by a careful revision of the tenement house laws.

The work of the Board during the past year for the improvement of the tenement house conditions has been more than usually active and successful, both in the interior of the tenement house and on the exterior surroundings. Eighty-two thousand three hundred eighty-eight square feet of their back yards have been paved and drained, high board fences cut down, sheds and ells removed to let sunlight and fresh air do their hygienic work, and make the lower rooms and rear of the main building useful and fit to live in. The opposition on the part of the owners and occupants of tenement houses, and the removal of the old sheds and ells and high board fences, although greatly lessened during the last few years, is still manifested to some extent. It is not always easy to convince occupants that the loss of these objectionable structures is more than offset by the introduction of sunlight, clean air currents and dry, well drained yard surface, and light for the hallway, kitchen, closets, etc., in the main building. Open wire fences instead of the high board fences, and more yard space, especially across the rear portion of the yard, are among the changes which should be insisted upon in all cases and so provided for in the law.

INSPECTION OF PROVISIONS.

The service for the inspection of provisions was re-organized and strengthened last year by adding to the duties of Dr. Burr the supervision and direction of all food inspection. The inspection and certificates for decayed consignments of produce at the wharves and railroad stations by our inspectors, having been considered more perfunctory than needful, have been discontinued, and additional time secured and given to inspection at places of sale and manufacture of food stuffs. The whole inspection service for animals and provisions is now in excellent condition.

PAVING AND DRAINING PRIVATE ALLEYWAYS.

The work of paving and draining private alleyways which are found to be in bad sanitary condition, has been continued as in past years, as the season would permit.

Such alleyways are examined by the Board of Health, notices and hearings are giving to the abutters under authority of chapter 119 of the Acts of 1894, and in due time the paving and draining are secured.

Thirty eight thousand, two hundred and fifty-three square feet of such work has been done by the abutters under the order of the Board during the last year.

A choice between several kinds of paving, to suit the uses made of the alleyway, is given to the abutters, and approved by the Board of Health.

A smooth surface with proper grades and catch-basins for surface drainage are required, and a good sanitary condition is secured.

DUMPS.

During the year the board found it necessary to adopt the following regulation respecting public and other dumps where refuse material was deposited, because of the serious and emphatic complaints made against the smoke from burning of paper and other refuse material:

June 3, 1903.

At a meeting of the Board of Health this day, it was voted to adopt the following regulations:

Whereas, in the opinion of the Board of Health of the City of Boston, the burning in the open air of refuse, rubbish, and waste material of any description within the city limits is attended with noisome odors and dense smoke;

And, *Whereas*, said odors and said smoke are, in the opinion of said board, liable to cause sickness among the inhabitants of said city;

Ordered, That from and after this date no person shall burn, or permit to be burned, in the open air, any refuse, rubbish, or waste material of any description within the city limits on any land owned by him except in accordance with a written permit from the Board of Health.

The nuisances which are created by the disposal of the city waste in filling in lowlands, building streets, etc., otherwise called "dumps," have grown in number and magnitude in late years, and have given rise to numerous and well-grounded complaints from residents in the vicinity of said dumps. The immediate trouble which is caused by the dumps comes from the offensive odors and from the light soiled materials which are blown by the winds from the dumps upon the premises of surrounding neighbors. The burning or attempting to burn this kind of material on the dumps is not only futile in effect, but is the cause of an unbearable nuisance to the neighborhood by reason of the smoke and sickening odors thus increased. The City Council made an ordinance some years ago forbidding dumping of house offal and rubbish in any place not approved by the Board of Health. The Board of Health soon afterward made a regulation extending the effect of said ordinance, requiring the immediate covering in of all decomposable matter with clean material, levelling and keeping the surface of the dump clean, and that none of the materials shall be burned at the dump or be allowed to escape to adjoining premises. Under this ordinance and regulation very great improvements have been accomplished, but there is still much to be done. The Board of Health still adheres to its recommendations made in its annual report to the City Council for the year 1895, namely: "The Board would respectfully suggest that all of the other wastes and rubbish which are gathered by the city carts (excepting clean ashes), and which now go to the dump or down the harbor on the scows, can be reduced by heat to clean material which can be used for various purposes with a commercial value. The Board believes that eight or ten crematories might be constructed, at moderate cost, in different sections of the city, giving short hauls for the teams, and be maintained at a trifling net cost to the city. In this way all decomposing organic matter would be readily converted to clean ash, and all old junk and rag pickings be placed under control, disinfected and made safe for their various uses."

MORGUE.

The new city morgue, erected in 1902, and provided with the most modern and approved means for receiving, preserving and presenting for identification human dead bodies, at an expense of more than thirty-eight thousand dollars, has proved wholly satisfactory for the use to which it was intended to be put. During the year ending January 31, 35 bodies were received and properly cared for. The autopsy room and all needful things pertaining to a modern outfit were provided without stint of expense. This was done for the use of the medical examiner of the district, and on the same spot where, in an ill-provided and decayed old building, he formerly made his autopsies, and justly protested against the unfitness of the building. A salaried officer was also retained for aid to the medical examiner at the morgue. But as no use was being made of the morgue by the medical examiner, and no duties there for the salaried officer, the latter was dropped from the pay-roll on January 13, 1904.

STABLES.

Hearings were had on 60 applications for the occupancy of stables. Of this number 38 were granted, 11 refused, 2 withdrawn, and 9 are waiting action.

EXAMINATION OF PLUMBERS.

During the past year weekly examinations have been held by the Board of Examiners of Plumbers. Of the 181 applicants registered, 68 asked for masters' and 113 for journeymen's licenses.

Of the number who applied for masters' licenses, 34 passed satisfactory examinations and were granted licenses, and 34 were refused, not having passed satisfactory examinations. Of those who applied for journeymen's licenses, 55 were granted and 58 refused.

EXAMINATION OF GAS-FITTERS.

BOSTON, MASS., February 1, 1904.

JAMES MULCAHY, Esq.,
Building Commissioner:

DEAR SIR, — In compliance with chapter 265, Acts of 1897, the Board of Examiners of Gas-fitters herewith submit a report of proceedings of said Board, from February 1, 1903, to February 1, 1904:

Number of applications for licenses referred by Building Commissioner to Board of Examiners		188
Number of examinations held		41
Number of applicants examined by Board		145
Masters	76	
Journeymen	69	
Number of applicants examined, certified by Board to Building Commissioner for license		36
Masters	25	
Journeymen	11	
Number of examination papers rejected, applicants not receiving requisite percentage		109
Masters	51	
Journeymen	58	

By the above statement it will be seen that the per cent. passing the masters' examination was 32, and 15 per cent. passed the journeymen's examination.

Respectfully submitted.

SAMUEL H. DURGIN,
JAMES MULCAHY,
WILLIAM E. WHIDDEN,
Board of Examiners.

APPOINTMENTS.

The Board organized the first Monday in May by the choice of Samuel H. Durgin, M.D., as chairman and Charles E. Davis, Jr., as secretary.

March 4, Joseph Williams, M.D., was appointed one of the medical inspectors of schools in place of Dr. Duff, resigned.

April 13, William E. Whidden was appointed an inspector of gas-fittings.

September 30, S. C. Badger, M.D., was appointed one of the medical inspectors of schools, in place of Dr. Green, resigned.

November 1, Frederick J. Cotton, M.D., was appointed one of the medical inspectors of schools.

SAMUEL H. DURGIN, M.D., *Chairman.*
EDWIN L. PILSBURY,
DENNIS J. HERN.

FINANCIAL STATEMENT.

EXPENDED TO JANUARY 31, 1904.

Board of Health	$12,500 00	
Clerk-hire	10,877 42	
Messenger service	306 27	
Sanitary Inspectors	34,895 81	
Inspector of Animals and Meats	1,402 28	
Medical officers	8,200 00	
Disinfection	21,943 70	
Smallpox Hospital	13,180 09	
Contagious diseases other than smallpox	133 99	
Medical inspection of schools	9,800 00	
Vaccination	4,359 00	
Laboratory	10,747 40	
Nuisances	745 32	
Morgue	618 71	
Postage	350 00	
Telephones	1,404 39	
Travelling expenses — officers	2,009 48	
Office expenses	2,346 24	
Horse and vehicle — Board of Health and Medical Inspectors	2,317 28	
Stationery	662 81	
Printing	5,435 19	
Advertising	64 76	
Examination of plumbing and gas-fitters	635 00	
Inspection of milk and vinegar	11,340 76	
Inspection of provisions	2,823 95	
Superintendent of Pedlers	2,388 36	
Removal of buildings	1,345 31	
Quarantine, sundries, and port physician	3,307 32	
Quarantine, Gallop's Island	5,748 93	
“ steamer “Vigilant”	19,145 37	
		$191,035 14

INCOME.

Quarantine	$5,115 68
Inspection of milk and vinegar	690 00
Other sources	14,453 78
Total	$20,259 46

INVENTORY OF PROPERTY IN CHARGE OF THE BOARD OF HEALTH.

Office No. 11 Old Court House, office furniture and records.
Bacteriological Laboratory, 607 Sudbury Building, furniture and scientific equipment.
Smallpox Hospital, Southampton street —
  One building used as a hospital.
  One building used as a disinfecting plant.
  One building for quarantining suspected cases of rabies in dogs.
Milk inspection, office and laboratory at 30 Huntington avenue, with chemical apparatus for the examination of milk and vinegar.
Morgue, North Grove street.
Disinfecting building in North Grove street, for the storage of disinfectants — 12 horses, 5 wagons, 3 ambulances, 2 vans, 5 pungs, 1 undertaker's wagon, and 44 regenerators.
Quarantine steamer "Vigilant," with equipment.
Gallop's Island, with the following buildings, etc.:
  Rag-shed for the disinfection of rags.
  4 polling booths.
  2 detention-houses.
  1 bath-house.
  Smallpox hospital.
  Yellow fever hospital.
  Overseer's house.
  Barn.
  Laboratory.
  Carpenter shop.
  Blacksmith shop.
  2 wagons.
  Ambulance.
  Farming, carpenter, and blacksmith tools.
  2 horses.
  3 cows.

REPORT OF DIRECTOR OF BACTERIOLOGICAL LABORATORY.

To the Board of Health:

GENTLEMEN, — I have the honor to submit the following report for the year ending January 31, 1904:

The laboratory routine and methods are first described, together with notes on the application and interpretation of the laboratory results in practice, and on paratyphoid fever, the organism of dysentery, summer diarrhœa, etc.

Thereafter are given the results of certain investigations conducted under general instructions from the Board of Health, or under special instructions in particular cases. These investigations related to

1. The designing of a machine for disinfection on the lines worked out and reported last year.
2. Disinfection experiments with various liquid solutions.
3. Search for the Shiga bacillus in summer diarrhœas and tests of the serum proposed for the treatment of these diseases.
4. An epidemic at the Boston Insane Hospital.
5. A new and simple method of growing anærobes.
6. An electrolytic process for disinfection of clothing in laundries.
7. Miscellaneous tests. An appendix giving the results of the regular routine work follows, containing a summary of six years work ending January 31, 1904.

FIRST PART.

LABORATORY ROUTINE.

Laboratory Address. — Room 607, Sudbury Building, Sudbury street, Boston. After August, 1904, 501 Boylston Chambers, 739 Boylston street. Telephone Back Bay, 1500.

Hours for Receiving Specimens. — Specimens are received from culture stations at the laboratory daily throughout the year from 8.30 A.M. to 6 P.M. Special deliveries may be made up to 9 P.M. (See below.)

Hours for Examinations. — The laboratory is open for examination of specimens from 8.30 A.M. to 5. P.M., except that on Saturdays the closing hour is 12 M., and on Sundays and legal holidays 10 A.M.

Transmission of Specimens. — Outfits for specimens from *Tuberculosis*, *Diphtheria*, *Typhoid*, and *Malaria*, are kept at certain drug stores appointed for the purpose, and known as "culture stations." (See page 43.)

If other examinations than these are required, the laboratory should be consulted by telephone (1500 Back Bay) before the specimen is taken.

After the specimen is obtained from the patient it may be taken or sent directly to the laboratory. If preferred, specimens from cases of *Tuberculosis* and *Diphtheria* may be returned to a culture station. They must not be mailed under any circumstances. If received at the culture station early enough to reach the laboratory before 6 P.M., they are forwarded free to the laboratory the same day. Late cultures (*i.e.*, too late for reception at the culture stations) may be sent at the physician's expense up to 9 P.M., and will be placed in the incubator at that hour for examination next morning. *Typhoid* and *Malaria* specimens should not be left at the stations, but should be sent directly to the laboratory by mail.

If special examinations are required the specimens should be sent by special messenger at the physician's expense, and the attention of the laboratory should be specifically called to the specimen at the time of its delivery.

Diphtheria Outfits should be examined before leaving the culture station. If the serum is dry or liquified, return the outfit as "not good" and ask for a fresh one.

Tubercle Outfits. The bottle furnished by the laboratory contains a small quantity of 5 per cent. carbolic acid solution. This should not be poured out. The sputum should be deposited in the bottle and mixed with this disinfectant solution.

Swab and Five-hour Examinations in Cases of Suspected Diphtheria. — When requested, the laboratory is ready at all times during examination hours (ordinarily 8.30 A.M. to 5 P.M.; on Saturdays, 8.30 A.M. to 12 M.; on Sundays and holidays, 8.30 A.M. to 10 A.M.) to examine the *swabs* themselves from cases for *diagnosis*. It has been found that in about one-half of the cases finally proving positive after the ordinary incubation a positive diagnosis can be made from the swab without waiting for incubation, thus saving from fifteen to twenty-four hours. A negative result from the swab is unreliable. In such cases, if the culture has been brought into the laboratory before 12 M., a *five-hour incubation* may be given and reported on at 5 P.M., except on Saturdays, Sundays, and holidays. A negative result from this examination also is unreliable, and the regular overnight incubation must then be proceeded with.

Positive results from the swab, the five-hour, or the overnight incubation are equally reliable.

Reports. — Early reports from the specimens submitted are of importance chiefly in the diphtheria diagnostic work. Everything else is subordinated to obtaining these results quickly. All positives for diagnosis, and all doubtful or unsatisfactory results where a second examination may be desirable, are reported to the physician by telephone when possible. Negative results for diagnosis, and cultures for release are not reported by telephone, except upon request. All results are reported to physicians by mail, whether telephoned or not.

Persons Eligible for Examination. — Boston physicians may send cultures from patients resident within or outside of Boston. Physicians resident outside of Boston may send cultures from patients resident in Boston. When both physician and patient reside outside of Boston, the cultures should be sent to the State Board of Health.

Examination of Horses for Glanders. — Veterinarians desiring to make the guinea pig or mallein tests for glanders in horses are supplied with swabs for securing material for injection into guinea pigs or mallein in quantities of one or two doses at a time free at the laboratory. On return of the infected swabs to the laboratory, the inoculation tests are carried out and the results reported to the veterinarian as early as possible.

Horses Eligible for Examination. — Boston veterinarians may send preparations from horses whose owners are resident either within or outside of Boston. Veterinarians resident outside of Boston may send preparations from horses, the owners of which reside in Boston, or from horses stabled or working in Boston, although their owners are non-residents. If the veterinarian resides outside of Boston, and the horse is stabled and works outside of Boston, preparations may be sent if the owner is a resident of Boston; otherwise the preparations should go to the State Board of Agriculture, Cattle Department.

METHODS OF EXAMINATION AND INTERPRETATION OF RESULTS.

Tuberculosis.

Outfits. — For suspected tubercular sputum, square, wide-mouthed bottles of about half an ounce capacity are supplied, contained in a pasteboard box and accompanied by a paper form, with directions on one side, and on the other blank spaces to be filled out by the physician with particulars of the case. To prevent infection of the laboratory from sputum, each bottle is sent out half filled with 5 per cent. carbolic acid solution. The sputum is deposited in this solution and remains there until it is examined.

No bottle containing sputum will be received for examination if leakage from the bottle during transit has occurred.

If the examination of urine for *B. tuberculosis* is desired, it is best to send to the laboratory the whole amount passed in 24 hours. Special precautions should be taken to prevent contamination with smegma or other foreign matter.

Usually such cases require the injection of guinea pigs to establish the diagnosis.

Examination. — The sputum specimens are examined usually on the morning following receipt.

The Interpretation of Bacteriological Findings in the Diagnosis of Tuberculosis.

(See also previous reports.)

Positive Results. — It is probable that very occasionally a few tubercle bacilli may be found in the mouths of healthy persons, but persons suffering from any affection of the lungs, larynx, etc., and presenting also the tubercle bacillus in their expectoration may safely be considered as suffering from the disease.

Negative Results. — A single negative result does not demonstrate the absence of the bacilli from the particular specimen of sputum examined, nor, if that absence be continued throughout subsequent examinations of successive specimens, is the absence of the disease necessarily established.

A clinical diagnosis of tuberculosis, pulmonary or genito-urinary, should not be reversed upon a single negative result.

Sometimes, notably in genito-urinary cases, injection of guinea pigs is necessary to reach a final decision, but the results are then available only after four to twelve weeks.

Diphtheria.

Outfits. — One serum tube, one swab tube containing two swabs, a card to be filled out by the physician with the particulars of the case, and a paper giving directions, are enclosed in a pasteboard slide box, which is disinfected in formaldehyde gas each time before being sent out. Before taking an outfit from a culture station the serum should be inspected, and, if dry or liquefied, rejected. *For diagnosis*, one swab *may* be used for the nose and one for the throat, both being inoculated on the same serum tube. *For release*, this procedure *is required* by a regulation of the Board of Health. If it is desired to obtain *for diagnosis* separate results from the nose and throat, two outfits should be used, the nose swab being inoculated on one serum, the throat swab on the other, but nothing is gained by taking *separate* nose and throat cultures for *release*. When a rapid or swab examination for diagnosis is contemplated, it is well to rub the swab on the suspected area in the nose or throat a second time *after* the inoculation of the serum. The swab is then returned directly to the swab tube. This procedure increases the reliability of the swab results by increasing the amount of material made available for examination.

Incubation. — All diphtheria cultures received up to 6 P.M. are placed in the incubator at 37°C. over night for examination at 8.30 A.M. the next day. Cultures delivered at the physician's expense, between 6 P.M. and 9 P.M. will also receive incubation. Should a culture be delayed beyond the time of closing, it may at times be well to remember the procedure followed by Gehrmann of Chicago. The tube, well stoppered, is placed in a pocket of the robe worn at night and is thus incubated at body temperature. Placing the tube over a radiator or near a stove is comparatively unsatisfactory.

Release. — By a regulation of the Board of Health, two consecutive negative cultures from both the throat and nose are required from each case reported as diphtheria before isolation is officially terminated and disinfection performed. In all cases the second of these cultures must be taken by the medical agent of the district in which the patient resides.

When the first negative for release is obtained the proper medical agent is notified by telephone from the Board of Health (Old Court House) to take a culture. Should this prove negative it constitutes the required second negative, and the patient is then released.

Should the agent's culture be positive, as it is in a large number of the positive cases, a first negative must again be obtained and be followed by a second negative, in order to secure the two *consecutive* negatives required.

The Interpretation of Bacteriological Findings in the Diagnosis of Diphtheria. — (See also previous reports.)

The disease of diphtheria exists always, and exists only, when the body shows a reaction to toxins formed by the diphtheria bacillus. A clinical condition, due to diphtheria toxins, whether mild or severe, and whatever the particular symptoms shown, is properly classed as diphtheria.

The detection of the diphtheria bacillus is used as an indicator of the *presence* of the diphtheria toxins. It is not absolutely reliable, for the diphtheria bacillus does not always produce its toxins. If with the positive culture the patient presents symptoms clearly those of diphtheria poisoning, both the presence of the toxins and their activity may be inferred. If the symptoms are indefinite, the presence of the diphtheria bacillus may be assumed to show the presence of diphtheria toxins; and the existence of symptoms, indefinite though they be, may be assumed to result from the activity of the toxins. It is true that diagnoses based on these assumptions are not always correct, but the percentage of error is much smaller than that of unaided clinical diagnosis.

The Absence of the Diphtheria Bacillus is, on the other hand, absolute proof of the absence of the disease. The difficulty lies in proving absolutely that the bacilli are in fact absent. Two or three, or even four, negative cultures may occasionally be taken from throats carrying the bacilli. This is especially true of pure laryngeal cases where the seat of lesion is not readily reached. Hence, while one negative culture is of some value, two, three, or four should be taken in suspicious cases before rejecting a clinical diagnosis of diphtheria on the bacteriological results alone.

No Growth.— This is a laboratory term used to designate any culture which for any reason (usually because the serum is too dry or has been liquefied by contaminating bacteria) does not yield material satisfactory for examination.

A Negative Report, Accompanied by a Request for Another Culture is sent whenever a negative result is obtained from a case clinically diphtheria (as indicated by the physician's diagnosis) or from a case showing membrane on pharynx and tonsils, or from a laryngeal case, or from a case yielding bacilli of doubtful identity.

Typhoid and Paratyphoid Fevers.

The dried-blood method for the serum reaction is used.

Outfit. — This consists of aluminum foil, on which the blood is to be dried, and a small copper wire loop for transferring the blood to the foil. With this foil is a card, to be filled out by the physician, and a circular of directions. All three fit into a manila envelope for safe keeping. After the physician has taken the blood preparation it is returned to the laboratory by mail, postage two cents.

Examination.— The dried blood is mixed on the foil with sterile water; a drop of this is mixed on a coverslip with a drop of broth containing the bacilli, a total dilution of one in fifty being used. This preparation, mounted as a "hanging drop," is observed at intervals under the microscope for one hour. If loss of motility only, or clumping only, occurs, the preparation is called atypical, and another requested. If both occur, a positive, and if neither, a negative report is sent.

Interpretation of Results of Serum Tests in Typhoid and Paratyphoid Fevers.— The reactions occur in the blood as one of the results of the reaction of the body forces to the action of the bacilli. They may be obtained from rabbit's blood within three or four days after injecting the rabbit with living or dead bacilli. In such rabbits the reaction is not necessarily or usually associated with the lesions, intestinal or otherwise, characteristic of typhoid fever in the human patient. Nor is it essential that the human patient should have the ordinary symptoms, or lesions, of intestinal typhoid fever in order to develop a reaction. It is sufficient that the human patient should suffer from the effects of the bacilli, whatever clinical or anatomical conditions may accompany them. Moreover, once developed, the reaction may last for years after recovery, although usually it disappears within a few months. The presence of the reaction in the human patient means then the existence at some time past or present of an infection with the typhoid or paratyphoid bacilli, *usually* but not *necessarily*, an infection taking the ordinary form of clinical typhoid or paratyphoid fever.

Paratyphoid Fever.

The existence of indefinite "febriculæ," "gastric fevers," "mild atypical typhoid," etc., has long complicated the diagnosis of typhoid fever. Recent work permits the extension of the limits of definite diagnosis into this field, since it has been shown that some at least of these obscure cases are due to the action of bacilli, differing from, yet closely allied to, the typhoid bacillus. Like the typhoid bacillus, these bacilli produce substances in the blood of the patient attacked which permit specific serum tests analogous to that known as the Widal reaction for typhoid fever.

The same drop of blood used for the Widal test suffices also for the paratyphoid test. The dilution should be not lower than one in fifty. At this point, typhoid serum will not agglutinate paratyphoid organisms, nor will paratyphoid serum agglutinate typhoid organisms, as a rule.

Two types of bacilli producing the fevers known as paratyphoid are recognized. These are known as the paratyphoid bacillus and the paracolon bacillus, or more simply as paratyphoid bacillus α and β.

Paratyphoid fever is important to the sanitarian because it is sometimes epidemic, and is also found in association with typhoid epidemics. The bacilli which cause it are apparently disseminated in quite the same ways as are typhoid bacilli, and this disease has therefore much the same sanitary significance as typhoid fever.

Clinically, the recognition of paratyphoid fever, by the serum test or otherwise, is important to the physician, since so far as yet determined the mortality is lower and the tendency to termination by crisis greater than in typhoid fever, permitting a comparatively favorable prognosis.

To Interpret a Positive Report Properly, the physician must know whether a previous infection existed, and how long before, if at all. If there is a clear and reliable history of freedom from anything resembling typhoid fever previous to the attack, it may be usually assumed with safety that no such previous infection existed, and that the reaction obtained developed during the present attack. One source of error lies in the fact that reliable histories regarding such fevers cannot always be obtained, and that in any case a slight or obscure infection, other than intestinal, might have existed without recognition as "typhoidal."

A Negative Reaction is of little or no significance. These reactions do not develop in the human before the fifth day usually, may not develop until late in the disease, and are not constantly present after development, so that a negative result may be interposed between two positives. It is easy to see that a patient might have typhoid or paratyphoid fever, and with it the corresponding reaction present on certain days of the attack, and yet that, by a coincidence, all the blood for the test might be taken on "off" days — days on which no reaction could be obtained. While this *possibility* should be remembered, it is not *likely* to be encountered if several successive specimens be taken. *An atypical reaction* means nothing. The subsequent reactions may be positive or negative.

Dysentery, Summer Diarrhœa, etc.

Recent researches have shown that the organisms of tropical dysentery may be found in northern latitudes as a cause of intestinal troubles, sometimes in true dysentery, perhaps also sometimes in "summer diarrhœas." While as yet conclusive evidence on the etiology of the latter class of diseases is not at hand, the laboratory is prepared to make serum tests with the bacillus of dysentery (*B. dysenteriæ* Shiga).

The dried blood method is not satisfactory, and the necessary outfit, consisting of a small pipette into which the blood may be drawn up, and in which it may coagulate and so squeeze out the serum, will be supplied on application. It is hoped that physicians will avail themselves of this opportunity to develop what may prove to be a very valuable aid in the diagnosis of intestinal diseases.

Malaria.

Outfit. — This consists of a small flat tin box, which contains two glass slides. On application to the laboratory, one such box, accompanied by a circular of directions and a card to be filled out with the particulars of the case by the physician, is mailed to the address given. The outfit should be returned to the laboratory by mail.

Examination. — Upon receipt of the slides, with the blood smeared on them as directed, the examination is carried out. The greatest care should be exercised to obtain a *thin even smear of blood upon the slide.* Better and more satisfactory results can be obtained by the examination of *fresh undried* blood. The physician places a *small* drop of blood on a slide, quickly drops a coverslip upon it, and at once seals the coverslip to the slide with a little vaseline carefully applied to the whole circumference of the coverslip. This preparation must be taken to the laboratory at once by a careful person, who is directed not to disturb it in any way.

Glanders.

This work is done largely by Dr. Alexander Burr, veterinarian to the Board.

Outfit. — This consists of a cylindrical copper box, containing an eight-inch test tube, a card for particulars of the case and a circular of directions. The test tube contains a large swab of a design similar to that used for the diphtheria work. The outfits are sterilized each time before being sent out. The object to be sought by the veterinarian is the accumulation in the cotton of as much as possible of the suspected material from the nasal discharge or ulcers of the suspected horse.

Examination. — On receipt of an outfit at the laboratory the swab is transferred into five c.c.'s of sterilized water and shaken thoroughly in it. The resulting suspension is inoculated intra-abdominally into well grown male guinea pigs, and a positive or negative diagnosis is usually based upon the development or non-development of testicular lesions within seven days, after further examination of the testes, when enlarged, for the isolation of the organism.

Interpretation of Results of Guinea-pig Test. — (See Annual Reports, 1899, 1900.)

Mallein.

This diagnostic agent is made in the laboratory for the use of the Board of Health in testing horses for glanders. It is supplied free to veterinarians also for the same purpose. The methods of preparation and use and the interpretation of the results are given in the Annual Report of 1900.

Rabies.

Collection of Specimen. — Dogs or other animals suspected of rabies should not be killed, but should be confined securely, and notification sent to the veterinarian of the Board of Health. If the animal is dead the whole carcass should be preserved, and notification sent as above. Failing this, the head at least should be kept for examination.

Examination. — Rabies is examined for by injecting under the dura of a full-grown rabbit one half a c.c. of an emulsion consisting of about one gram of the brain or spinal cord from the suspected animal in ten c.c.'s of sterile water, filtered through absorbent cotton and paper. Paralysis or convulsions developing after fourteen days, followed by death, is good evidence of the presence of rabies, if other infections can be excluded by a careful autopsy of the rabbit, with cultures from blood and organs. Two rabbits at least should be inoculated with the same material in each case.

Rapid or Histological Method. — (See Annual Report, 1900.)

Influenza.

Influenza is examined for by direct staining (Smith's method is excellent for this work) of nasal or bronchial discharges, and by cultures from these regions and from the blood on glycerine agar, on the surface of which sterile human or pigeon's blood has been smeared. Sputum, etc., for examination, should be sent to the laboratory in small sterile wide-mouthed bottles, properly stoppered and labelled.

Other Examinations.

Any disease of a bacteriological nature will be examined for free of charge. Before collecting specimens from diseases, other than those already enumerated, communication should be had with the laboratory.

SECOND PART.

SPECIAL INVESTIGATIONS.

A New Machine for Formaldehyde Gas Disinfection.

Experiments carried on during 1902, and recorded in the report for that year, made clear that to achieve maximum efficiency, rapidity, and economy in disinfection with formaldehyde gas, in a manner applicable to municipal and hospital room disinfection, involved means and methods not then available. The nearest approach to the conditions which these investigations showed necessary for maximum results from minimum expenditure of time, money, and effort seemed to be promised by some form of spray. The objections to the available spraying devices lay in one or more of the following directions:

1. The wetting of the exposed surfaces, furniture, carpets, etc., in the room.
2. The difficulty of applying the spray through the keyhole, with the resulting necessity for the man using the spray to remain in the room during the spraying process.
3. The cumbersomeness of such available apparatus as promised even approximately practical conditions.

Having then determined the chief factors necessary, and finding no existing method meeting all the requirements, the writer designed a machine intended to assemble in one device all the desiderata of practical, efficient, rapid, accurate, and economical disinfection.

Naturally, many difficulties and disappointing delays were encountered in the designing and constructing of a full-sized working model. The results from this model, when completed, were so satisfactory that arrangements for securing the manufacture of the machines in number sufficient to be available for municipal work were entered upon, and at this date it is likely that the machine will ultimately be available for use.

A Comparison of the Bactericidal Powers of Some Common Liquid Disinfectants.

The points to be considered in the selection of a disinfectant were given in detail in a previous report (1898). The present work was undertaken by B. R. Rickards, assistant bacteriologist, to determine for certain common disinfectants, the relative values of which are frequently discussed, that point which relates to killing power. Comparative tests of this point are only of high value when conducted under rigidly parallel conditions, such that the only variable in the series of experiments shall be the solution to be tested.

In order to secure these parallel and comparable conditions, a single method of exposure (glass rod method of Hill) was used. The work was concentrated chiefly on one species of bacterium (*B. diphtheriæ*). In order that it should be reasonably complete for this species, ten strains were used (*i.e.*, cultures isolated from ten different patients). The strengths of the solutions tested were uniform, the times of exposure exactly determined and every other detail of the technique followed without variation throughout.

It is safe to believe, then, that the relative killing power of the disinfectants tested, for *B. diphtheriæ* exposed on glass rods after drying is shown by Tables 1 and 2.

Table No. 3 furnished evidence to show that the relative killing power for *B. diphtheriæ* would also indicate the relative killing power for bacteria, other than *B. diphtheriæ*, exposed in the same manner to the same disinfectants.

The most striking feature of this comparison is the superiority of carbolic acid solutions over formaldehyde solutions of equivalent percentage strength, notwithstanding that in gaseous form, formaldehyde is exceedingly efficient in killing *B. diphtheriæ* dried upon glass rods. The solutions denoted by letter were commercial preparations. Solutions "A," "B," "C," "D" and "F" are all coal tar products. Solution "D" s said to contain about 10% of cresols with a small quantity of carbolic acid. It gives a milky appearance with water. Solution "A" contains about 98% alpha naphthalene sulfonic acid, the remainder being phenol sulfonic acid and a small amount of hydrocarbons. It gives a dark-colored solution on dilution with water. Solutions "B," "C," and "F" are probably composed largely of cresols. They have a milky appearance on dilution.

Solution "G" is a 3 per cent. solution of the commercial form of hydrogen peroxide, which contains a very small amount of hydrochloric acid to render it stable. The solutions diluted for testing contained therefore .03% and .15% of H_2O_2.

Solution "E" is a clear, watery solution composed largely of chloride of zinc with small amounts of the chlorides of aluminum and iron.

Solution "H" is a clear, watery solution. It is said to be made of saturated solutions of the chlorides of zinc, lead, calcium, aluminum, magnesium, potassium, and sodium.

All of the above mentioned solutions were diluted to one and five per cent. by volume. In the case of formaldehyde, a commercial solution was first analyzed, and from the data thus obtained, one and five per cent. solutions were then made up by weight.

Table No. I.

SHOWING PER CENT. OF DIPHTHERIA BACILLI KILLED BY A 1 PER CENT. SOLUTION (BY VOLUME) OF DISINFECTANT.

DISINFECTANT.	TIME OF EXPOSURE.			
	1 minute.	5 minutes.	15 minutes.	30 minutes.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Carbolic Acid, pure	90	100	100	100
Carbolic Acid, crude	90	100	100	100
Solution "A"	90	100	100	100
Solution "B"	40	100	100	100
Solution "C"	80	100	100	100
Solution "D"	10	100	....	....
Formaldehyde Solution (1% by weight)	....	....	50	80
Solution "E"	....	10 (?)	....	....

Table No. II.

Showing Per Cent. of Diphtheria Bacilli Killed by a 5 Per Cent. Solution (by Volume) of Disinfectant.

Disinfectant.	Time of Exposure.			
	1 minute.	5 minutes.	15 minutes.	30 minutes.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Carbolic Acid, pure............	100	100	100	100
Carbolic Acid, crude...........	90	100	....	....
Solution "D".................	90	100	100	100
Solution "B".................	90	100	100	100
Solution "C".................	80	100	100	90 (?)
Solution "A".................	90	90	90	100
Solution "F".................	10	90	100	100
Formaldehyde Solution (5% by weight)......................	10	60	100	100
Solution "G".................	....	....	10	40
Solution "E".................	....	....	10	10
Solution "H".................	....	....	....	40

Table No. III.

A Comparison of the Efficiency of 5 Per Cent. Solutions of Carbolic Acid and Formaldehyde on B. diphtheria, B. typhosus, and Staphylococcus pyogenes aureus.

Organism.	Time of Exposure.	Carbolic Acid, 5 Per Cent. (vol.)	Formaldehyde 5 Per Cent. (wt.)
		Per Cent.	Per Cent.
B. diphtheriæ..................	1 minute	100	10
Sta. py. aureus................	5 minutes.	100	10
B. typhosus....................	1 minute.	80	....

NOTE. — For a fuller account of this work see Journ. Mass. Assn. Bds. of Health, October, 1903.

Tests were also made of lemon juice, suggested as a "disinfectant" for typhoid fever bacilli in drinking water. The results were similar to those of others who investigated the same question about the same time, and showed that no dependence could be placed on the method.

A new and simple method for growing anærobes was devised by B. R. Rickards, assistant bacteriologist. This method is described in J. Mass. Assn. Bds. Health, May, '04.

An epidemic of acute diarrhœa at the Boston Insane Hospital was investigated by inspection and bacteriological tests, involving several visits to the hospital and many tests. The outbreak spread rapidly, the cases lasting a few days each, with no fatalities.

The Shiga Bacillus and Summer Diarrhœa.

The facilities of this laboratory were afforded to workers sent out by the Rockefeller Institute, under the direction of Dr. Flexner, for the study of this subject. A number of other stations throughout the country were similarly established, and other Boards of Health have participated in this work. Mr. A. I. Kendall, the Rockefeller representative, spent ten weeks, part of the time assisted by Mr. Paul Lewis, in searching for the Shiga bacillus in cases of summer diarrhœa found at the Boston Floating Hospital.

In 28 of the 35 cases examined, this organism was found, the apparently small number of cases examined being accounted for by the exceedingly tedious and laborious character of the work. Some of these cases were treated with the serum prepared under Dr. Simon Flexner's directions. It was found quite harmless, but not very efficient. The results on the whole go to confirm those obtained elsewhere by other simultaneous investigations. A full account is given in the Journal of the Massachusetts Association of Boards of Health, November, 1903.

Electrolytic Disinfection of Clothes.

Under instructions from the Board, a system advocated by the inventor for use in public laundries, hospitals, etc., was tested for disinfecting power. A small plant was installed at the inventor's expense, and a number of tests were conducted under his supervision, relating to the character of the solutions used in the tank, the temperature, voltage, amperage, etc. Exposures of bacteria on flannel and on glass rods were made. In no experiment was disinfection secured.

Miscellaneous.

A variety of special tests and observations relating to the routine work described in the appendix were made. A series of experiments relating to mallein were begun. Some inspections of malarial cases and their surroundings and of the cheap ice cream business were conducted. A chemical device for the detection of carbon monoxide, to be used in the search for leaking water gas, was tested, and a variety of other matters incidental to the work of the Board of Health were examined.

The following chemical examinations, directed by the Board of Health, were carried out by B. R. Rickards, assistant bacteriologist:

The usual routine tests of chloride of lime and of formaldehyde offered for purchase to the Board of Health were made. (For methods used, see previous reports.)

Oil of peppermint, used by the sanitary inspectors of the Board in testing plumbing, was submitted for tests for adulterants. Two samples were found adulterated. At the suggestion of Mr. Charles E. Davis, Secretary of the Board, experiments were conducted relating to the provision of an efficient and less expensive substitute for peppermint. Such a substitute was devised by Mr. Rickards, and is now in use.

A sample of window curtain, submitted for the arsenic test, proved free from arsenic.

Specimens of water from a large office building were analyzed, because of complaints of the quality of the water. Analysis showed no marked difference between this water and that of the general supply, and other investigations showed that the objectionable features depended on the iron tank used for storage in the building.

HIBBERT WINSLOW HILL, M.D.,
Director.

SUMMARY FOR SIX YEARS ENDING JANUARY 31, 1904.*

Report of 1898.

New Methods Devised.

1. Glass rod method for testing disinfectants.
2. Aluminum sheet outfit for typhoid blood.
3. Modification of fermentation tube.
4. Methods and formula for making media; since adopted in substance as standards by the Laboratory Section of the American Public Health Association.

Special Investigations.

1. Chemical and bacteriological examination of Electrozone, proposed as a municipal disinfectant.
2. Concentration of rabies poison by consecutive inoculations in rabbits.
3. Branching in diphtheria bacilli.
4. Statistical work on diagnostic examinations relating to diphtheria, typhoid, and glanders (continued thereafter from year to year).

Report of 1899.

New Methods Devised.

1. Artificial milk, from nutrose, for bacteriological purposes. (With A. A. Wheeler.)

Special Investigations.

1. Telephone transmitters as sources of infection.
2. Sulphur dioxid as a disinfectant for plague bacilli.
3. Suspected pollution of certain sources of ice supply for Boston.
4. Agglutinative reactions from rabbit's blood after inoculation with *B. typhosus* and *B. coli.* (With A. A. Wheeler.)
5. A case of suspected bubonic plague.
6. Handling of tuberculosis in different cities and States.

Special Notes.

1. Guinea-pig test for glanders. (With Dr. Burr.)
2. Preparation of mallein.

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* For summary of routine work for the six years, see Appendix.

Report of 1900.

New Methods Devised.

1. Rapid staining of large numbers of specimens of sputum.

Special Investigations.

1. Further test of sulphur dioxid for killing plague bacilli.
2. Examination of clams from the Charles river for sewage contamination.
3. Examination of oysters and clams from Marion, Mass., supposed sources of Boston typhoid.
4. Examination of blank cartridges for tetanus (lockjaw), bacilli.
5. Examination of calcimine and blackboard paints in schoolhouses for arsenic.

NOTE.—In this year, examination of sputum was first put on the list of regular routine diagnostic services.

Report of 1901.

New Methods Devised.

1. Decimal system for recording cultures genealogically.
2. "Hanging blocks" for examining growing bacteria.

Special Investigations.

1. Morphology of *B. diphtheriæ*; "snapping" and branching.
2. Boston ice supply, natural and artificial, with inspections of all sources.
3. Infected clothing in laundries, the risk to laundry workers, and to other clothing, and the degree of sterilization of woollens attained in ordinary laundries.
4. Clams in Mystic river.
5. Survival of typhoid bacilli in cooked shell-fish.
6. A case of ptomaine poisoning.
7. Candy-making in Boston.
8. Distribution of Wesbrook's types of diphtheria bacilli in well persons — 2,000 special cultures.

Report of 1902.

New Methods Devised.

1. Atomization of formaldehyde with steam as a method of disinfection.

Special Investigations.

1. Comparative morphology of *B. diphtheriæ*, *B. xerosis*, *B. pseudo-diphtheriæ* and 15 other bacteria, with assistance from B. R. Rickards, A. I. Kendall, Leo F. Rettger and F. P. Denny.
2. Reinvestigation of formaldehyde gas.
3. Carbolic acid as a gaseous disinfectant.

4. Comparative distribution of *B. diphtheriæ* and *B. tuberculosis* in rooms of patients.
5. Drying experiments with *B. diphtheriæ* and *B. tuberculosis*, etc.
6. Distribution of *Anopheles* in Boston.
7. Distribution of Wesbrook's types of *B. diphtheriæ* in routine diagnostic examinations.
8. Note of a type of *B. diphtheriæ* approximating but differing from, the D_2 type.
9. Bactericidal power of a dust-laying preparation used in the Boston schools.
10. Effect of aluminum on agglutination of blood.

Report of 1903.

New Methods Devised.

1. Machine for steam atomizing of formaldehyde for room disinfection.
2. Method of growing anærobic bacteria.

Special Investigations.

1. Comparative value of liquid disinfectants.
2. Summer diarrhœa; search for Shiga bacillus. A. I. Kendall, Paul Lewis. (Rockefeller research.)
3. An electrolytic process for disinfection of woollens in laundries.
4. Diarrhœa outbreak at the Boston Insane Hospital.

APPENDIX TO LABORATORY REPORT.

TABLE SUMMARIZING ROUTINE EXAMINATIONS FOR YEAR ENDING JANUARY 31, 1904.

	Diphtheria.	Tuberculosis.	Typhoid.	Glanders.	Malaria.[1]	Other diseases.[2]	Total.	Average per day.
February, 1903	593	245	55	14	5	4	916	
March	587	340	54	19	1	7	1,008	
April	511	323	66	11	13	2	926	
May	545	309	86	24	11	2	977	
June	473	219	90	14	6	7	809	
July	461	201	103	6	10	4	785	
August	528	156	130	9	10	3	836	
September	390	186	134	12	12	4	738	
October	946	253	113	17	11	3	1,343	
November	1,169	222	86	14	6	4	1,501	
December	1,250	216	93	18	6	4	1,587	
January, 1904	1,327	244	78	17	7	2	1,675	

TABLE SUMMARIZING ROUTINE EXAMINATIONS FOR SIX YEARS ENDING JANUARY 31, 1904.

	Diphtheria.	Tuberculosis.	Typhoid.	Glanders.	Malaria.[1]	Other diseases.[2]	Total.	Average per day.
1903–1904	8,780	2,914	1,088	175	98	46	13,101	36
1902–1903	7,729	2,322	984	140	98	32	11,305	31
1901–1902	11,304	1,957	1,049	158	85	52	14,605	40
1900–1901	18,889	1,021	1,014	119	38	44	21,125	57
1899–1900	7,930	not done	483	65	19	29	8,526	24
1898–1899 (9 months)	3,948	....	122	......	......	......	4,070	15
Total	58,580	8,214	4,740	657	338	203	72,732	

[1] Positive.

[2] Including gonorrhœa, septicæmia, etc.

Table No. I. — Diphtheria.

SHOWING CULTURES CLASSIFIED.

	Positive.	Negative.	No Growth.	Total.
Primary	942	4,511	115	5,568
Secondary	972	2,203	37	3,212
Total	1,914	6,714	152	8,780

Table No. II. — Diphtheria.

SHOWING CASES CLASSIFIED.

	POSITIVE.		NEGATIVE.		NO GROWTH.	TOTAL.		TOTAL.			
	For Diagnosis.	For Release Only.	For Diagnosis.	For Release.	For Diagnosis Only.	For Diagnosis.	For Release Only.	Positive.	Negative.	No Growth.	Grand Total.
	1	2	3	4	5	6	7	8	9	10	
1903.											
February	56	8	316	19	1	373	27	64	335	1	400
March	51	7	345	20	2	398	27	58	365	2	425
April	50	5	256	20	0	306	25	55	276	0	331
May	45	1	324	22	4	378	23	46	346	4	396
June	61	5	232	28	5	298	33	66	260	5	331
July	53	4	197	37	3	253	41	57	234	3	294
August	62	1	328	19	2	392	20	63	347	2	412
September	45	6	204	25	1	250	31	51	229	1	281
October	117	13	432	45	8	557	58	130	477	8	615
November	148	28	461	34	0	609	62	176	495	0	671
December	131	23	517	29	4	652	52	154	546	4	704
1904.											
January	103	19	537	48	1	641	67	122	585	1	708
	922	120	4,149	346	31	5,102	466	1,042	4,495	31	5,568

Column 1 shows the whole number of persons proving positive for diagnosis. In some of these cases the first culture was negative, but subsequent cultures for diagnosis were positive. Column 2 shows the total persons positive for release only, no culture (or in a very few cases a negative culture) being taken for diagnosis. Column 3 shows cases negative throughout for diagnosis. A few of these were reported as diphtheria in spite of the negative cultures, but these proved negative for release also. Column 5 shows cases on which none but no growth cultures were received.

Table No. III. — Diphtheria.

SHOWING COMPARISONS OF WORK DONE IN DIFFERENT YEARS.

Actual Number of Cultures and Persons Examined.

Feb. 1. to Feb. 1.	CULTURES.				PERSONS.				Cases Reported.
	Per Month.	For Diagnosis.	For Release.	Total.	Per Month.	Positive Diagnosis.	Negative Diagnosis.	Total Released.	
	1	2	3	4	5	6	7	8	9
1898 (Est.)...	440	2,000	3,200	5,300	190	400	1,500	550	1,661
1899.........	660	4,408	3,522	7,930	380	1,019	2,920	1,002	2,836
1900 (Approx.)	1,560	8,000	10,800	18,800	700	2,100	5,600	2,000	5,020
1901.........	944	6,689	4,615	11,304	544	1,176	4,679	1,249	2,906
1902.........	660	5,506	2,223	7,729	438	726	4,140	781	1,881
1903.........	732	5,659	3,122	8,781	464	922	4,149	892	2,166

Relative Number of Cultures and Persons Examined (Calculated per 100 Cases Reported).

1898.........	320	120	192	320	137	24	90	33	1,661
1899.........	280	155	124	280	160	36	103	35	2,836
1900.........	370	159	216	370	167	42	111	39	5,020
1901.........	380	230	158	380	224	40	161	42	2,906
1902.........	411	292	112	411	279	38	220	41	1,881
1903.........	405	261	144	405	257	42	191	41	2,166

Table No. I. — Tuberculosis.

MONTHLY TOTALS OF EXAMINATIONS.

MONTH.	Positive.	Negative.	Totals.
February, 1903	61	185	246
March	84	256	340
April	76	247	323
May	71	239	310
June	59	161	220
July	62	139	201
August	57	99	156
September	54	132	186
October	61	192	253
November	46	178	224
December	41	175	216
January, 1904	48	196	244
Totals	720	2,199	2,919

Table No. II. — Tuberculosis.

SHOWING RESULTS OF EXAMINATIONS CLASSIFIED.

NATURE OF SPECIMEN.	Primary Positive.	Primary Negative.	Secondary Positive.	Secondary Negative.	Total Positive.	Total Negative.	Total Examinations.
Sputum	666	2,023	54	150	720	2,173	2,893
Urine	....	6	....	4	....	10	10
Pus	....	7	....	1	....	8	8
Pleural fluid	....	3	....	....	....	3	3
Discharge from bowels	....	1	....	3	....	4	4
Axilla scrapings	....	1	....	....	....	1	1
Totals	666	2,041	54	158	720	2,199	2,919

Table No. III. — Tuberculosis.

SHOWING CASES CLASSIFIED.

NATURE OF SPECIMEN.	Positive.	Negative.	Total.
Sputum	687	2,002	2,689
Urine	....	6	6
Pus	....	7	7
Pleural fluid	....	3	3
Discharge from bowels	....	1	1
Axilla scrapings	....	1	1
Totals	687	2,020	2,707
	25.4%	74.6%	100%

Of the 687 positive cases, 97 per cent. (666) were found to be positive on the first examination, and 3 per cent. (21) on subsequent examinations.

Table No. I. — Typhoid.

MONTHLY TOTALS OF WIDAL REACTIONS.

MONTH.	Positive.	Negative.	Atypical.	Total.
February, 1903	4	51	....	55
March	2	52	....	54
April	7	57	2	66
May	4	81	1	86
June	13	72	5	90
July	9	91	3	103
August	11	110	9	130
September	20	108	6	134
October	9	97	7	113
November	18	64	4	86
December	18	74	1	93
January, 1904	9	63	6	78
Totals	124	920	44	1,088

Table No. II. — Typhoid.

SHOWING CASES CLASSIFIED.

Positive.	Negative.	Unsatisfactory.	Total.
119 13%	774 85%	17 2%	910 100%

Table No. I. — Glanders.

MONTHLY TOTALS OF GUINEA-PIG TESTS.

MONTH.	Positive.	Negative.	Unsatisfactory.	Total.
February, 1903	9	5	0	14
March	6	7	6	19
April	7	1	3	11
May	5	10	9	24
June	2	7	5	14
July	1	3	2	6
August	2	4	3	9
September	4	8	0	12
October	9	6	2	17
November	2	11	1	14
December	3	6	9	18
January, 1904	3	1	13	17
Totals	53	69	53	175

Table No. II. — Glanders.

SHOWING CASES CLASSIFIED ON RESULTS OF GUINEA-PIG TESTS.

MONTH.	Positive.	Negative.	Unsatisfactory.	Total.
February 1, 1903, to February 1, 1904.	41 37.9%	48 44.5%	19 17.6%	108 100%

REPORT OF CHIEF MEDICAL INSPECTOR.

To the Board of Health:

GENTLEMEN, — I have the honor to submit the following report for the year ending December 31, 1903:

Infectious Diseases.

Smallpox. — During the past year 68 cases of smallpox were found in the city. All these cases were cared for at the hospital on Southampton street. Of the 68 cases, 40 were males and 28 females.

Ages of Patients Admitted. — 1 to 5 years 1, 5; 6 to 12 years, 5; 12 to 21 years, 6; 22 to 35 years, 25; 35 to 50 years, 13; over 50 years, 4 — total 68.

Of the patients admitted, the youngest was 15 days old, and the oldest 66 years old. Of these cases (68), 35 presented evidences of vaccination at some period of life, and 33 were never vaccinated.

	January.	February.	March.	October.	December.	Totals.
Cases..........	39	20	7	1	1	68
Deaths........	6	2	1	—	—	9

Of the 9 deaths, 5 were males and 4 females.

Deaths among unvaccinated persons under 5 years of age, 1; over 25 years of age, 4.

Deaths among vaccinated persons all over 33 years, 4.

General mortality 13%.

Diphtheria. — Two thousand seventy-three (2,073) cases of diphtheria were reported; one thousand one hundred eighty-six (1,186) of these were cared for at the South Department of the City Hospital. There were two hundred fourteen (214) deaths. Mortality 10.32%.

Scarlet Fever. — One thousand four hundred seventy-nine (1,479) cases of scarlet fever were reported; seven hundred six (706) were cared for at the South Department of the City Hospital. There were sixty-five (65) deaths. Mortality 4.39%.

Measles. — Two thousand three hundred five (2,305) cases reported.

Typhoid Fever. — Eight hundred ninety (890) cases reported.

Tuberculosis. — One thousand three hundred one (1,301) cases reported.

During the past year three hundred eighty persons died without a physician in attendance, and were reported to this office. In all these cases a personal visit was made, the body examined, and a probable diagnosis made before granting a permit for burial. Thirteen cases were referred to the medical examiner for investigation.

A tabular statement of the cases investigated is appended:

Tabular Statement of the Cause of Deaths Investigated by the Chief Medical Inspector for the Year ending December 31, 1903.

BERTILLON CLASSIFICATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
I. General Diseases.													
Measles	....	....	1	....	....	....	....	....	....	....	....	....	1
Whooping cough	....	2	2	....	2	....	....	....	....	....	....	....	6
Diphtheria and croup	...	1	....	....	....	...	1	2	....	....	....	....	4
Typhoid fever	....	....	....	....	....	....	1	....	....	....	....	....	1
Tuberculosis of lungs	3	5	4	4	1	4	4	1	....	3	1	4	34
" " general	....	1	....	....	....	....	....	....	1	1	....	...	3
Tubercular meningitis	....	....	2	....	....	....	....	....	1	....	....	...	3
Cancer of breast	1	....	....	....	....	....	1	....	....	....	....	1	3
" others	1	3	....	....	1	1	....	....	....	....	1	....	7
Total from general diseases,	5	12	9	4	4	5	7	3	2	4	2	5	62
II. Diseases of the Nervous System and of the Organs of Sense.													
Simple meningitis	....	....	....	....	....	1	1	....	....	....	....	1	3
Cerebral hemorrhage and congestion	....	1	....	1	....	....	....	3	1	1	2	1	10
Epilepsy	....	....	....	....	2	....	....	....	1	....	....	....	3
Convulsions of infants	3	3	1	1	3	....	....	1	....	....	1	....	13
Other diseases of the nervous system	1	....	...	1	....	....	....	1	....	....	....	....	3
Total of the nervous system	4	4	1	3	5	1	1	5	2	1	3	2	32
III. Diseases of the Circulatory System.													
Organic diseases of the heart,	4	3	7	6	2	6	7	7	9	5	6	7	69
Angina pectoris	...	1	....	....	....	....	....	....	....	....	....	....	1
Hemorrhage	....	....	....	1	....	....	....	1	....	....	....	....	2
Other diseases of the circulatory system	....	....	....	....	....	....	....	....	...	1	....	....	1
Total of the circulatory system	4	4	7	7	2	6	7	8	9	6	6	7	73
Carried forward	13	20	17	14	11	12	15	16	13	11	11	14	167

STATEMENT OF THE CAUSE OF DEATHS.— *Continued.*

BERTILLON CLASSIFICATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Brought forward	13	20	17	14	11	12	15	16	13	11	11	14	167
IV. Diseases of the Respiratory System.													
Acute bronchitis	1	2	....	2	....	1	....	....	2	1	1	...	10
Chronic bronchitis	....	....	....	....	....	....	2	....	....	....	1	....	3
Pneumonia	....	....	....	....	....	1	2	2	....	....	....	....	5
Broncho Pneumonia	5	3	1	1	....	2	1	....	....	1	3	5	22
Total of the respiratory system	6	5	1	3	....	4	5	2	2	2	5	5	40
V. Diseases of the Digestive System.													
Infantile diarrhœa and athrepsia	....	....	....	....	2	1	8	9	3	3	3	1	30
Cirrhosis of liver	....	....	....	....	....	...	....	....	1	....	....	....	1
Total of the digestive system	....	....	....	....	2	1	8	9	4	3	3	1	31
VI. Diseases of the Genito-Urinary System and Adnexa.													
Acute nephritis	...	1	....	....	....	....	....	1	....	....	....	....	2
Bright's disease	....	....	....	....	....	....	2	....	....	....	....	....	2
Total of the genito-urinary system	....	1	....	....	....	....	2	1	....	....	....	....	4
No deaths were examined in the classifications of VII., VIII., and IX.	....	....	....	...	....	..	....	....	....	....	....	....	....
X. Malformations.													
Malformations	1	....	....	....	....	....	....	....	....	....	....	....	1
Total malformations	1	....	....	....	....	....	....	....	...	....	....	....	1
XI. Infantile.													
Congenital debility, icterus and scleroma	1	3	....	6	1	3	1	3	9	5	2	4	38
Other diseases peculiar to infancy	1	1	....	1	....	....	....	....	....	....	....	1	4
Total infantile	2	4	....	7	1	3	1	3	9	5	2	5	42
Carried forward	22	30	18	24	14	20	31	31	28	21	21	25	285

STATEMENT OF THE CAUSE OF DEATHS.—*Concluded.*

BERTILLON CLASSIFICATION.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Brought forward	22	30	18	24	14	20	31	31	28	21	21	25	285
XII. Old Age.													
Senile debility	3	1	1	....	....	2	2	2	....	....	1	3	15
Total from old age	3	1	1	....	....	2	2	2	....	....	1	3	15
XIII. External Violence.													
Sunstroke	....	....	....	....	....	....	1	....	....	....	....	....	1
Other accidental injuries	....	2	....	....	....	....	1	....	....	....	....	....	3
Total from external violence	....	2	....	....	....	....	2	....	....	....	....	....	4
XIV. Ill-Defined Diseases.													
Unknown or not specified diseases	3	5	7	4	4	5	3	4	1	5	1	5	47
Total ill-defined diseases	3	5	7	4	4	5	3	4	1	5	1	5	47
Still-births	2	2	1	....	3	....	1	....	2	1	2	2	16
Referred to medical examiner	3	1	....	2	1	....	2	....	1	1	....	2	13
Total	33	41	27	30	22	27	41	37	32	28	25	37	380

Respectfully submitted,

THOMAS B. SHEA, M.D.

REPORT OF GEORGE A. SARGENT, M.D.

January 1, 1904.

To the Board of Health:

GENTLEMEN,— I have the honor to present the following report:

There have been vaccinated at Chardon street, the past year, 2,309 persons. The number of certificates of vaccination issued have been 1,071. The Chardon Street Home has been visited at various times, and patients there have been treated.

At the Suffolk County Jail 3,443 cases were treated, and 5,826 visits were made. Daily vaccination at the jail was not continued after July 1.

A tabular statement of cases treated at the jail is appended.

Respectfully submitted,

GEORGE A. SARGENT, M.D.

Tabular Statement of the Diseases Treated at Suffolk County Jail for the Year ending December 31, 1903.

DISEASES.	Remaining Jan. 1, 1903.	Treated during the year.	Recovered.	Improved.	Sent to Hospital.	Sent to Insane Asylum.	Discharged from Custody.	Died.	Remaining Dec. 31, 1903.
General Diseases:									
Anæmia	....	1	....	1	....	....	....	....	....
Cold	....	85	85	.....	....	....	....	....	....
Debility	....	17	....	17	....	....	....	....	....
Fever, intermittent	....	3	3	.....	....	....	....	....	....
Grip	....	17	17	.....	....	....	....	....	....
Phthisis, pulmonalis	....	4	....	4	....	....	....	....	....
Rheumatism, acute	....	5	5	.....	....	....	....	....	....
Rheumatism	....	108	....	108	....	....	....	....	....
Rheumatoid arthritis	....	1	....	.....	....	....	1	....	....
Functional Diseases of Nervous System:									
Delirium tremens	....	114	114	.....	....	....	....	....	....
Epilepsy	....	3	....	3	....	....	....	....	....
Neuralgia	....	78	40	38	....	....	....	....	....
Organic Disease of Nervous System:									
Cerebral Hemorrhage	....	1	....	.....	....	....	1	....	....
Locomotor Ataxia	....	1	....	.....	....	....	1	....	....
Neuritis	....	1	....	1	....	....	....	....	....
Sciatica	....	4	3	1	....	....	....	....	....
Diseases of Intellect:									
Acute Mania	....	1	....	.....	....	....	....	1	....
Dementia	....	8	....	.....	....	8	....	....	....
Diseases of Heart:									
Endocarditis	....	2	....	.....	....	....	....	2	....
Myocarditis	....	1	....	.....	....	....	1	....	....
Diseases of Bronchi:									
Asthma	....	1	....	.....	....	....	1	....	....
Bronchitis, acute	....	28	28	.....	....	....	....	....	....
Bronchitis, chronic	1	1	....	.....	....	....	2	....	....
Diseases of Lungs:									
Pneumonia	....	1	....	.....	....	....	....	1	....
Pleurisy	....	1	1	.....	....	....	....	....	....
Carried forward	1	487	296	173	....	8	7	4	

STATEMENT OF THE DISEASES TREATED.—*Continued.*

Diseases.	Remaining Jan. 1, 1903.	Treated during the year.	Recovered.	Improved.	Sent to Hospital.	Sent to Insane Asylum.	Discharged from Custody.	Died.	Remaining Dec. 31, 1903.
Brought forward	1	487	296	173	....	8	7	4	....
Diseases of Glands:									
Adenitis	....	1	1	....	....	....	....	....	....
Parotiditis	....	1	1	....	....	....	....	....	....
Diseases of Fauces:									
Pharyngitis	....	19	19	....	....	....	....	....	....
Post-nasal catarrh	....	3	....	3	....	....	....	....	....
Stomatitis	....	12	12	....	....	....	....	....	....
Tonsillitis, follicular	....	13	13	....	....	....	....	....	....
Disease of Larnyx:									
Laryngitis	....	1	1	....	....	....	....	....	....
Disease of the Stomach:									
Gastritis	....	1	1	....	....	....	....	....	....
Disease of Bladder:									
Cystitis	....	1	....	1	....	....	....	....	....
Disease of Kidneys:									
Nephritis	....	1	....	1	....	....	....	....	....
Disease of Liver:									
Hepatitis	....	4	....	....	....	....	4	....	....
Diseases of Digestive System:								....	....
Colic	....	6	6	....	....	....	....	....	....
Constipation	....	875	875	....	....	....	....	....	....
Diarrhœa	....	155	155	....	....	....	....	....	....
Dyspepsia	....	69	....	69	....	....	....	....	....
Functional Diseases of Women:									
Dysmenorrhœa	....	15	....	15	....	....	....	....	....
Metrorrhagia	....	2	....	2	....	....	....	....	....
Pregnancy	....	4	4	....	....	....	....	....	....
Diseases of Cutaneous System:									
Acne	....	5	....	5	....	....	....	....	....
Carbuncle	....	1	1	....	....	....	....	....	....
Clavus	....	1	1	....	....	....	....	....	....
Dermatitis	....	10	10	....	....	....	....	....	....
Carried forward	1	1,687	1,396	269	....	8	11	4	....

STATEMENT OF THE DISEASES TREATED.— *Continued.*

DISEASES.	Remaining Jan. 1, 1903.	Treated during the year.	Recovered.	Improved.	Sent to Hospital.	Sent to Insane Asylum.	Discharged from Custody.	Died.	Remaining Dec. 31, 1903.
Brought forward	1	1,687	1,396	269	....	8	11	4	....
Eczema	....	5	....	5	....	....	....	....	....
Favus	....	1	....	.....	....	....	1	....	....
Furuncle	....	6	6	.....	....	....	....	....	....
Herpes	....	1	1	.....	....	....	....	....	....
Onychia	....	1	1	.....	....	....	....	....	....
Paronychia	....	5	5	.....	....	....	....	....	....
Phthiriasis	....	34	34	.....	....	....	....	....	....
Psoriasis	....	1	....	.....	....	....	1	....	....
Purpura	....	1	1	.....	....	....	....	....	....
Scabies	...	30	30	.....	....	....	....	....	....
Seborrhœa	....	1	....	1	....	....	....	....	...
Sycosis	....	1	1	.....	....	....	....	....	....
Tinnea	....	1	....	.....	....	....	1	....	....
Urticaria	....	4	4	.....	....	....	....	....	....
Verruca	....	1	1	.....	....	....	....	....	....
Diseases of Eye :									
Conjuctivitis	....	23	23	.....	....	....	....	....	....
Hordeolum	...	4	4	.....	....	....	....	....	....
Poisons :									
Opium habit	....	33	....	33	....	....	....	....	....
New Growths :									
Carcinoma	....	1	....	.....	....	....	1	....	....
Intestinal Parasites :									
Taenia	....	1	1	.....	....	....	....	....	....
Surgical Diseases :									
Abscess	....	16	16	.....	....	....	....	....	....
Chancroid	....	5	2	3	....	....	....	....	....
Chronic ulcer	....	12	....	12	....	....	....	....	....
Dactylitis	....	1	....	.....	....	....	1	....	....
Erysipelas	....	1	1	.....	....	....	....	....	....
Fistula (salivary)	....	1	1	.....	....	....	....	....	....
Frost-bite	....	1	1	.....	....	....	....	....	....
Carried forward	1	1,879	1,529	323	....	8	16	4	....

STATEMENT OF THE DISEASES TREATED. — *Concluded.*

DISEASES.	Remaining Jan. 1, 1903.	Treated during the year.	Recovered.	Improved.	Sent to Hospital.	Sent to Insane Asylum.	Discharged from Custody.	Died.	Remaining Dec. 31, 1903.
Brought forward	1	1,879	1,529	323	....	8	16	4	....
Gonorrhœa	7	61	30	35	....	....	....	....	3
Hæmorrhoids	....	5	....	5	....	....	....	....	....
Ingrown nail	....	2	....	.....	....	....	2	....	....
Leucorrhœa	....	8	....	8	....	....	....	....	....
Necrosis	....	2	....	2	....	....	....	....	....
Otitis	....	12	12	.....	....	....	....	....	....
Synovitis	....	2	2	.....	....	....	....	....	....
Syphilis	8	38	....	42	....	....	....	....	4
Urethritis	....	1	....	1	....	....	....	....	....
Varix	....	2	....	2	....	....	....	....	....
Injuries:									
Abrasions	....	50	50	.....	....	....	....	....	....
Burns	....	4	4						
Contusions	....	30	30	.....	....	....	....	....	....
Dislocations	....	1	1	.....	....	....	....	....	....
Fractures	....	13	12	.....	1	...	....	....	....
Sprains	....	19	19	.....	....	....	....	....	....
Wounds:									
Gun-shot	....	3	3	.....	....	....	....	....	....
Incised	....	14	14	.....	....	....	....	....	....
Lacerated	....	21	21	.....	....	....	....	....	....
Scalp	....	79	78	.....	....	....	....	....	1
Total	16	2,246	1,805	418	1	8	18	4	8
Number of vaccinations	....	1,167	....	....	....	....	....	....	....
Malingering	....	14	....	.....	....	....	....	....	....
Grand total	16	3,427	1,805	418	1	8	18	4	8

REPORT OF PORT PHYSICIAN.

To the Board of Health :

GENTLEMEN, — I herewith submit the annual report of the Quarantine Department for the year ending February 1, 1904.

During the past year all vessels from foreign ports, with the exception of the British Maritime Provinces, have been inspected; and from June 1 to October 15 all vessels from ports south of Virginia have been inspected. Under a recent ruling all vessels from Porto Rico are classified with those coming from southern ports.

The Hospital report is as follows:

	In Hospital Feb. 1, 1903.	Admitted.	Discharged.	Died.
Variola	....	3	3	....
Varicella	....	2	2	....
Observation	....	44	44	....
Measles	....	17	17	....
Scarlet Fever	....	3	3	....
Total	....	69	69	....

The following vessels have been disinfected during the past year:

May 1, 1903, steamship "Saxonia."
September 11, 1903, steamship "Occenfels."
September 13, 1903, steamship "Tannenfels."
September 15, 1903, steamship "Borneo."
October 17, 1903, steamship "Huda."
October 23, 1903, steamship "Hindustan."
November 18, 1903, steamship "Swazi."
November 23, 1903, steamship "Wartenburg."
December 23, 1903, steamship "Marienfels."
December 26, 1903, steamship "Simoon."
December 27, 1903, steamship "Manica."
January 9, 1904, steamship "Provan."
January 14, 1904, steamship "Pomeranian."
January 16, 1904, steamship "Inkum."
January 26, 1904, steamship "Swartzenfels."
January 29, 1904, steamship "Mars."

The following number of vessels have arrived:

February, 1903	90	September, 1903	76
March, 1903	85	October, 1903	47
April, 1903	85	November, 1903	58
May, 1903	81	December, 1903	55
June, 1903	83	January, 1904	62
July, 1903	77		
August, 1903	87	Total	886

The following fees have been collected:

Eight hundred and eighty-six vessels at $5	$4,430 00
Disinfection	385 00
Board	341 00
	$5,156 00

Respectfully submitted,

Paul Carson,

Port Physician.

REPORT OF MILK INSPECTOR.

BUREAU OF MILK INSPECTION,
30 HUNTINGTON AVENUE, BOSTON, MASS.

To the Board of Health:

GENTLEMEN, — I have the honor to submit the following report for the year ending January 31, 1904:

The total number of samples collected and examined was 15,596, as follows:

Number of samples of milk from wagons	7,180
" " " " stores	5,906
" " " brought in by citizens	161
Total milk samples	13,247
Number of samples of vinegar	602
" " butter, cheese, and oleomargarine,	1,747
Total samples	15,596

The number of samples of milk of distinctly poor quality was considerably smaller than for some years past, and fewer prosecutions were, therefore, made necessary. It is probable that the unusual weather conditions during the summer months contributed somewhat to this result, since in times of continued hot weather the increased demand and the losses consequent on souring of part of an already short supply are incentives to adulteration. Other contributing causes include constant inspection, increased watchfulness of the large contracting concerns to keep out the milk of dishonest and careless producers, and the steady decline in the number of small dealers. The use of coloring matters and preservative agents has continued to be almost unknown.

The increased use of renovated butter has caused a considerable amount of additional work to ensure that that substance shall be sold according to the statute relating thereto, and the result has been that the requirements of the law are generally respected. The prosecution of a number of persons for the sale of adulterated butter, that is to say, of butter containing boric acid and borax, has had its hoped-for influence upon those who have shipped it into the State.

In the last preceding report, mention was made of a revival of the sale of yellow oleomargarine, due to the phraseology of the Federal law, which distinguishes between the product in its natural state and that which resembles yellow butter by reason of containing artificial colorings. A number of dealers were induced to undertake the sale of oleomargarine made in a neighboring State from yellow cottonseed oil and yellow butter, and resembling natural butter. They were promised legal assistance in case of prosecution, and payment of fines if they should be convicted. Nineteen complaints were brought in the various district courts, and the defendants were convicted, but all appealed. In the Superior Court one of the appellants was tried, and on the evidence presented in defence the jury was directed by the presiding justice to bring in a verdict of not guilty. Representatives of the manufacturer testified that nothing was used in order to produce the yellow color, which was unavoidable, since the oil and butter, which were essential constituents, were naturally yellow. The remaining cases were, therefore, not tried, but were placed on file. It looked for a time as though the intention of the Legislature to protect the dairy interests would be of no avail, but it was discovered by the Federal authorities that the several manufacturers concerned were buying cottonseed oil, to which palm oil had been added for the purpose of heightening its color. Their product was thereupon taxed ten cents per pound, an amount which makes its selling price prohibitive, and no further business was done.

An unusually large number of cheeses were examined for preservatives. A few brands were found uniformly to contain borax in violation of law, but the retailers of the same were merely warned to discontinue their sale, since they were innocent of guilty knowledge. The manufacturers' agents were, however, prosecuted and convicted, and this action together with the refusal of the retailers longer to handle the goods resulted in either the discontinuance of the use of the preservative or the branding of the packages according to the provisions of the statute. One brand of cheese was discovered to contain 20 per cent. of starch. The manufacturer's agent was prosecuted and convicted, and no further shipments were received.

The vinegar supply continues to maintain a high standard of excellence.

Following is a summary of prosecutions made during the year:

For possession or custody of milk not of good standard quality with intent to sell	194
For possession of milk containing coloring matter with intent to sell	2
For possession of milk not of good standard quality and containing coloring matter with intent to sell	1
For sale of adulterated butter	14
“ “ “ renovated butter not properly marked	12
“ “ “ adulterated cheese	6
“ “ “ oleomargarine not properly marked	2
“ “ “ “ “ being licensed	2
“ “ “ yellow oleomargarine	19
“ serving oleomargarine without notification	2
“ sale of adulterated cider-vinegar	6
“ “ “ “ vinegar	3
“ “ “ vinegar not made from cider as cider-vinegar,	5
Total	272

Eight defendants were acquitted, six cases were *nol pros'd*, four warrants were returned without service, three defendants disappeared, and one died pending trial.

The amount paid in fines was $4,467.60.

Respectfully submitted,

CHARLES HARRINGTON,

Inspector.

REPORT OF INSPECTOR OF ANIMALS.

BOSTON, February 1, 1904.

To the Board of Health:

GENTLEMEN, — I have the honor to submit the following report of the inspection of provisions, of animals and dressed meat at the Brighton Abattoir, and animals kept for the production of milk within the city, for the year ending January 31, 1904:

ANIMALS KILLED AT ABATTOIR.

Cattle	28,056
Calves	15,205
Sheep	13,829
Swine	11,253
Total	68,343

Table No. 1.

ANIMALS CONDEMNED.

	Number.	Weight (Pounds).
Cows	101	43,535
Steers	1	980
Bulls		
Calves	79	2,684
Sheep		
Swine	6	1,305
Parts of animals, including 705 livers		14,805
Total	187	63,309

Many of the smaller animals, as sheep, calves, and swine, arrive at the slaughter-houses dead, and are at once prepared for rendering by the owners; such cases are not considered as seizures, and are not included in the table of animals seized and condemned.

"Parts of animals," in the above table, refers to animals where only a part of the same was condemned, the unmarketable portion being confined to the parts about the local lesion.

Table No. II.

DISEASES FOUND AMONG ANIMALS AFTER HAVING BEEN KILLED AND DRESSED AT THE ABATTOIR NECESSITATING THE CONDEMNING OF THE CARCASSES.

DISEASES.	Cattle.	Calves.	Sheep.	Swine.
Tuberculosis	97	....	....	4
Septicemia	5	....	....	2
Immatured	....	79	....	....
Total	102	79	....	6

Table No. III.

ANIMALS RECEIVED DEAD FROM THE STOCK-YARDS TO BE DRESSED FOR FOOD.

ANIMALS.	Number Received.	Number Condemned.	Weight.
Cows	20	2	870
Steers	4	....	....
Totals	24	2	870

The above table refers to animals arriving at the different stock-yards which were unable to walk to the abattoir because of injury during transportation, or from what was supposed to be a slight illness; these were short at the stock-yards, and carted to the abattoir in the ambulance.

Of the above twenty-four animals, fourteen were found to be slightly injured, three had fracture of a leg, five were pregnant, and two had septicemia, the last two being condemned.

ACTINOMYCOSIS.

There were found at the abattoir during the past year twenty-five cases of actinomycosis, all of which showed only local lesions about the head, and in these cases the heads and tongues were condemned.

TUBERCULOSIS.

The following table shows the percentage of tuberculosis in cattle killed at the abattoir:

Table No. IV.

CLASS OF ANIMALS.	Number Received.	Number Tubercular.	Percentage.
Whole number of all kinds (cattle)	28,056	260	
Cows from Eastern States	6,526	255	
Bulls from Eastern States	1,097	3	
Cows from Western States	6,801		
Steers from Western States	13,632		
Steers from Eastern States		2	
Swine	11,253	4	

Under the head of "Cows from Eastern States" is included animals from all of the New England States.

By comparing the above table with table under the head of "Diseases found among animals after having been killed," etc., it will be seen that only 97 of the 260 cases of tuberculosis were condemned. This means that 163 of these cases were slight, and not condemnable under the act passed by the Legislature of 1898.

INSPECTION OF CATTLE.

The inspection of cattle kept for the production of milk within the city limits has been continued as heretofore. All cattle that have, upon physical examination, shown any symptoms of tuberculosis have been subjected to the tuberculin test.

Of twenty animals that have been tested with tuberculin, nine were found tuberculous and quarantined. These were at once reported to the State Cattle Bureau as required by the Revised Laws. The barns occupied by these animals were disinfected by the Board of Health.

GLANDERS.

There have been reported to the Board of Health, by veterinarians, during the past year, 253 suspicious cases of glanders. Of these, sixty-five horses, on examination, were found to be affected with some non-contagious disease, and the remaining 188 with glanders. Sixteen of these cases, upon inquiry, were found to have been owned and stabled outside of Boston, or had been stabled in Boston for so short a time that no doubt existed but that the animals were infected with glanders before coming to Boston. The State Cattle Bureau were notified of such cases, that an investigation might be made by them.

In addition to the above cases of glanders reported to this office, the Board of Health, by examining all animals in stables where a case of glanders has occurred, and also in many other stables, found twenty-five cases of glanders, or twelve per cent. of the total number of cases, all of which would otherwise have remained in such stables, a constant danger to the other animals, for some time before being discovered by the owner.

The following table shows the number of cases of glanders for each month during the past year:

Table No. V.

MONTH.	Cases reported.	Cases found by Board of Health.	Cases found which belonged in some other city.	Cases which, upon examination, were found not to be glanders.	Actual number of cases of glanders found in city.	Number of cases of glanders which belong in Boston.	Number of stables in which glanders was found.	Number of cases reported, but not located.
January	11	1	....	4	8	8	8	....
February	14	1	1	2	13	12	13	....
March	20	5	2	5	20	18	18	....
April	18	6	4	6	18	14	18	....
May	23	3	1	9	17	16	16	....
June	24	2	1	9	17	14	18	2
July	15	1	....	2	14	14	10	....
August	23	1	1	5	19	18	15	....
September	25	1	2	2	24	22	22	....
October	22	3	....	5	20	20	19	....
November	27	1	2	6	22	20	20	....
December	31	....	2	10	21	18	20	1
Total	253	25	16	65	213	194	197	3

All stables in which glanders occurred during the past year have been disinfected.

Mallein has been used to a considerable extent, particularly in such cases as were doubtful from a clinical standpoint, and where material for guinea-pig test was not available, as, for instance, where the only lesion to be discovered clinically was an enlarged sub-maxillary gland with no nasal discharge.

For a number of years the Board of Health has had similar arrangements, as in diphtheria, for the collection of specimens to be examined for glanders. Veterinarians having cases of a doubtful character from which they desire a guinea-pig test for glanders, are encouraged by the Board of Health to take advantage of this opportunity and send a specimen of the suspected matter (as discharge from nose, an ulcer, or an abscess) to the Board of Health laboratory to be tested. Upon making a diagnosis a report will at once be made to the veterinarian sending the specimen.

Veterinarians are also encouraged to use mallein as an aid to them in the diagnosis of glanders, and for this reason the Board of Health has for some time been ready to supply mallein.

Rabies.

There has been one case of rabies in Boston during the past year. This dog belonged to a travelling theatrical company, and was infected before arriving in Boston.

The following articles of food seized in markets and stores have been condemned:

Beef, from tuberculous animals	747	lbs.
Beef, tainted	4,045	"
Beef, bruised	275	"
Beef livers, tainted	100	"
Veal, tainted	3,766	"
Veal, immatured	23,410	"
Lamb, tainted	3,122	"
Pork, tainted	1,253	"
Poultry, tainted	5,890	"
Bear, tainted	250	"
Deer, tainted	265	"
Rabbit, tainted	100	"
Eggs, decayed	75	dozen.

Vegetables.

Beans	220	barrels.
Potatoes	21	"
Kale	172	"
Spinach	1,565	"
Pickles	9	"

Cauliflower	1 barrel.
Cranberries	14 barrels.
Tomatoes	2 "
Melons	5 "
Miscellaneous vegetables	9 "

FISH.

Lobsters	452 lbs.
Oysters	150 gallons.
Miscellaneous fish	3,081 lbs.

Respectfully submitted,

ALEXANDER BURR, M.D.V.,

Inspector and Veterinarian.